100 1910 - 2010 YEARS

Build a generic PC interface

Fully loaded ute at 'Deni'

Is reflected power lost power?

Winter VHF-UHF Field Day 2010 Results

Tune-in to the world. *Amateur radio gets people talking*
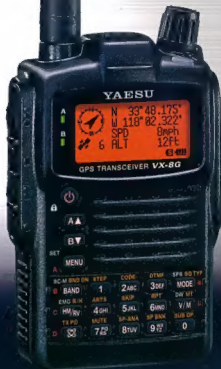
National Field Day

VK3DIF

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Celebrating the centenary of organised amateur radio in Australia

Our Cover

The background picture is a ten times actual (shown here) size reproduction of one of the etched boards used to create a generic PC interface in our homebrew project this month. Part one of this explicit and expansively described project is on page 16, part two will follow next month. Picture: Paul McMahon VK3DIP
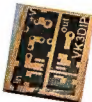
We are always in need of high quality images to be considered for use as cover photos. See the guidelines for submission on the AR pages on the WIA website.

Editorial

Peter Freeman VK3PF

Continual improvement and self education

Many workplaces promote the idea of continual improvement. Our hobby is about "self education." How can one combine these two themes? Easy, from my perspective! You can read technical articles on the web or in a magazine such as *Amateur Radio*. Or you can attend a technical talk at a local club meeting.

Other events which present the opportunity to hear about several topics in a short space of time are technical conferences, such as the GippsTech Conference each July.

There are many conferences held in the US and elsewhere in the world. Many publish printed Conference Proceedings volumes, which contain lots of technical information. Some authors also publish their papers on their own websites. Recent BATC and AMSAT-UK meetings can be found as streaming video on-line.

Whilst such resources are very valuable, there is nothing like actually being at the conference/symposium. In addition to the material presented, there is also the stimulating discussion that is ignited which ensures that any coffee or lunch break is far too short.

I can only recommend that readers seriously consider attending such events. To date, there have been only a few such events organised in VK, apart from the annual GippsTech conference.

For those located in South Australia and those that may be tempted to travel to Adelaide, I commend the upcoming AHARS symposium to be held on Sunday 19 September. With a full day of technical presentations and a practical demonstration of the hpsdr transceiver system, plus some historical perspective, it looks like an excellent way to spend a Sunday. From prior experience, I am aware that at least two of the speakers do an excellent job of explaining potentially difficult material at a level that most, if not all, amateurs should be able to understand. If it were not such a very long drive, I would definitely be there! Check out the club advertisement in this issue or their website at http://www.qsl.net/vk5bar/

Coming public events

Coming up in October are two key events that enable us to expose the broader community to our hobby. You need to be finalising your plans now.

In this issue, we have a report from Jamboree On The Air (JOTA) from last year. Yes, it is a long time after the event. As Editor, I decided to save this article as a reminder to all amateurs that the 2010 event is almost upon us.

If you will actually be directly involved with the youth members of either the Scout or Guide movements, your plans should be well advanced by now.

If you are not directly involved, at least be aware that some of the on-air activities may not necessarily meet our usual expectations with regard to on-air conduct – after all, we will be trying to encourage youngsters to actually speak into a microphone and make conversation. As a result, procedures may be a little more "relaxed" than usually apply. We all beg your tolerance. Of course, if you hear a Scout or Guide calling with no response, please do respond to them for a brief contact – any contact will make an impression, even if they are looking for another Scout or Guide contact.

I am aware that the VK100WIA callsign will be active over the JOTA weekend – the local club here will be operating the callsign on Sunday (UTC day). I would suggest that you give all the Scout and Guide groups as much opportunity as possible to work the callsign – I am sure that the operators will be willing to work "non-JOTA" stations if JOTA contacts are scarce.

The other event is the inaugural National Field Day. The rules are published in this issue, and Michael Owen VK3KI explains some of the background in his Comment. Whilst there are rules and points to be gained, it is not really, as far as I can see, a "contest". Some club may gain a "top score", but they will not be the winner. If clubs and/or individuals establish and operate stations within the spirit of the event, there will be one very important winner – the hobby of amateur radio. Our profile with the public will be improved.

Hopefully, we will be better understood and we may gain new participants in our hobby.

Cheers,

Peter VK3PF

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'Tune-in to the world — Amateur radio gets people talking'

WIA comment

The rules of the WIA National Field Day to be conducted on Saturday 23rd October next are published in this issue of *Amateur Radio*, under the heading "Tune-in to the world - Amateur radio gets people talking".

That is because it is not your usual contest. The heading we have used is the catch phrase that we hope will be used by clubs when participating in a public place to describe amateur radio.

Last month I wrote about the call to clubs to conduct "an event that promotes amateur radio in its community" in association with the WIA's centenary celebrations, and I discussed how a number of clubs and groups had responded to this call.

I also mentioned the new National Field Day.

So, I really am banging on again about the same thing, promoting amateur radio in our community.

Then why call it a Field Day? I could give two reasons. One is that we all have an idea what makes a field day. The other reason is that we could not find another name that really was better as a name.

There are problems with that. One is that when I said we all had an idea what a field day was I was certainly not suggesting that we all had the same idea. And, as we want to use the event to promote amateur radio to the public, it has even less meaning to the people who we are targeting as the people we want to interest.

That is why we have the heading.

If you look at the rules you will see there are two categories of station, a "public station" and a "private station". The "public station" is a station operated by three or more amateurs (usually a club) in a public place or a place open to the public.

If you look at the rules you will see that there are a significant number of bonus points on offer to "public stations". The big ones include 200 bonus points for operating in a prominent public location, for example a shopping centre, achieving publicity or hosting a structured amateur radio educational activity. There are even 100 bonus points available if the station provides a public information table to promote amateur radio.

Guest operators (non licensed people) are encouraged.

I have said many times during this year that the WIA hoped that all clubs would turn their mind to promoting amateur radio during the year, perhaps in association with the use of the VK100WIA callsign, perhaps in association with another activity.

I know of some clubs who want to use the VK100WIA callsign just to make as many contacts as possible. That is good, as we have overseas stations asking where can VK100WIA be found.

A number of clubs have said they would like to do something to promote amateur radio but could not find a really suitable activity.

This is the chance for all clubs to do something that should be fun, could attract new members and new radio amateurs.

But please think about how you will use the activity. It is not going to do much if all the onlooker sees is a person with a microphone or key exchanging numbers.

We need some posters – yes, we have the Calling CQ poster, but we need one to say a bit more about amateur radio – perhaps "Tune-in to the world - Amateur radio gets people talking", we need our Calling CQ brochures and we need more information on how to become a radio amateur.

The WIA hopes to be able to help with some of that.

But we also need people to talk to people, to explain what is happening, and what it is all about, and really how easy it is to get started. We don't want to look like groups of radio geeks.

Remember that not all of us like chatting to strangers, or are very good at it. Make sure that we use the best operators to operate the station, and the best salespersons to sell our club and amateur radio.

Michael Owen
VK3KI

Whether we are a station just making a contact with a club station seriously participating, or the club station, we need to think about what we are saying. Are we saying something that is likely to interest the casual observer?

If you go back to the rules, you will see that emergency readiness is also encouraged, with 200 bonus points for power from renewable energy and 100 bonus points for power from non-renewable portable sources. So, we can also tell the public what amateur radio can do that is useful for our community.

So, please think about this very special activity. I urge clubs to plan where to go, if they haven't already done so. Plan how you are going to address all the many issues, proper approval of the location you want to use, local newspaper, perhaps radio, perhaps TV publicity, safety issues, insurance, who is undertaking what tasks and so on.

The WIA will have a registration page on its website very soon.

Please read the rules, remember our message, "Tune-in to the world Amateur radio gets people talking" and start planning now. And register as soon as you can.

Finally, let me say this.

As they say to the students before every ARISS contact, "this is an experiment". This year it is part of the WIA Centenary year. Should we hold it next year, what changes should be made to better achieve the objective, how can we make it more interesting, even what should we call it, are real questions.

I certainly hope that every individual, group or club participating this year will tell us whether they want to do it again, and how we can make it better.

MO

WIAnews

ARDF Host; CGARC Museum; VK100WIA contacts 10,000; Spratly's; Temporary 70 cm

WIA to host 2011 Region 3 ARDF Championships

The WIA will host the IARU Region 3 ARDF Championships to be held in late 2011. The event is held every two years, alternating with the World ARDF championships.

The last IARU Region 3 Championships, scheduled for late 2009 near Bangkok, Thailand, were cancelled at the request of the host society because of the risk of political unrest.

Jack Bramham VK3WWW, WIA ARDF Coordinator and an International Class Referee, will organise and manage the event, working with the Victorian ARDF Group and supported by the WIA. The WIA will provide administrative support .

The event will be conducted in regional Victoria, at a venue yet to be finalised. This championship was last held in Australia in 2003, near Ballarat, Victoria. They were regarded as a great success. Volunteers will be called for to assist Jack's team.

Look out for future information on the WIA site www.wia.org.au and on the Victorian ARDF Group site www. ardf.org.au

Communications Museum shows off amateur radio

The very last available three-day rostered slot for WIA affiliated clubs to use the special callsign VK100WIA was taken up by the Central Goldfields Amateur Radio Club (CGARC) in Maryborough, Victoria.

That was in February enabling plenty of time to decide when and how the club would best use the slot.

Club President Peter Rafferty VK3CC says the Talbot Radio, Arts and Historical Museum was confirmed as the venue. The museum volunteers are very keen to lend their support.

The cross benefit was that the Centenary of Organised Amateur Radio, and the Museum were both included in promotional material. That resulted in articles in the Maryborough Advertiser and radio stations in Central Victoria.

At the formal opening, Peter Rafferty thanked Ron Firman and the other volunteers at the Talbot Museum for their strong support and assistance. He then introduced the WIA President, who congratulated the CGARC for having chosen a place that is interesting and attractive.

Michael said the wonderful location was fitting to celebrate the centenary, and also to promote amateur radio to the community.

CGARC, led by Peter VK3CC made plenty of contacts for VK100WIA. Its members and a few guest operators from the Ballarat Amateur Radio Group had a great time contributing to the centenary celebration.

VK100WIA contacts 10,000

Members of the Southern Peninsula Amateur Radio Club (SPARC) in Victoria Australia are thrilled at having logged contact 10,000 for the special callsign VK100WIA. Club Secretary John Ross VK3BJR reports that at 10.26 am local time (0026 UTC) Sunday 8 October 2010 the club activating VK100WIA at the Rosebud Scout Hall put the online log of QSOs into five figures, by contacting Rob Tilbury VK2LOZ at North Nowra, NSW.

John Ross said it was a most enjoyable activity for the Club and the level of activity encountered on the bands demonstrated the popularity the Centenary of Organised Amateur Radio in Australia celebration.

DX0DX countdown update

Only 150 days to go before the scheduled start of the multi-operator DXpedition on Thitu Island in the Spratly's 6-24 January 2011. Substantial progress has been achieved.

The Philippines National Telecommunications Commission has issued the DX0DX licence and DXpedition Team Leader Chris Dimitrijevic VK3FY and DU8/VK3FY confirms that documentation has been filed with the DXCC Advisory Committee. Formal DXCC accreditation is expected soon after proof is electronically submitted that operators have reached the island and DX0DX is on air. It was announced that Bob Schenck N2OO will be the QSL manager.

Among the current and growing list of corporate sponsors are ICOM America which is providing ten top-line IC-7600 transceivers plus one IC-9100 transceiver; amplifiers from Acom International, OM Power and THAMWAY Corp; antennas from SteppIR, Spiderbeam and Mosley-Electronics; bandpass filters from WX0B Array Solutions; masts by Rohn Products; Ham Radio Outlet; head-sets from Heil Sound; and feeders from The RF Connection.

ACMA proposes temporary use of 70 cm

On Monday 19 July 2010, WIA Directors Peter Young VK3MV and Phil Wait VK2ASD attended a briefing presentation by the ACMA on the proposed re-arrangements for the 400 MHz band (403 – 520 MHz) that includes the 70 cm amateur spectrum and the UHF CBRS band.

The WIA has made written submissions to the ACMA in respect to the 70 cm amateur Secondary Service allocation, detailing amateur use of the 400 MHz spectrum and expressing its concerns.

The ACMA confirmed the need for the temporary ad-hoc use of the spectrum segment 440 to 450 MHz by affected land-mobile licensees.

Clearing out parts of the land mobile spectrum at 400 MHz is needed for an orderly transition from a 9.5 MHz to a 10 MHz transmit/receive frequency split, and those affected land-mobile users need somewhere to go within the tuning range of their existing radios. The temporary use of the 440 to 450 MHz amateur band will be confined to the top and bottom 500 kHz, (440-440.5 MHz and 449.5–450 MHz, that is either side of the 70 cm ATV segment), and most likely will be only in the heavily congested areas of Sydney, Melbourne and Brisbane.

The ACMA has indicated that the temporary use arrangements could last up to three years.

The temporary use of 440 – 450 MHz has been utilised in the past for major sporting events and has not resulted in any reported interference issues. The WIA will be working with the ACMA's Operations Branch that will have the carriage of the implementation arrangements. **ar**

Is reflected power lost power?

Gary Gibson VK8BN

Here is some experimental evidence that suggests that this is not necessarily the case.

After reading a number of articles by Walter Maxwell W2DU, ARRL Technical Advisor, I was prompted to carry out some of my own experiments with mismatched loads. I carried out a couple of similar experiments that Walter described in Chapter 19A of his book *'Reflections'*.

My experiments were not nearly as comprehensive as those Walter described, however they were sufficient to convince me that the experiments that he described were indeed valid. The purpose of the experiments was to determine if all the reflected power from a mismatched load was necessarily lost. Many amateurs have the belief that the reverse power is simply subtracted from the forward power to establish the useful radiated power.

Using a TS-830S transceiver as the RF source and tuning and loading the pi network to deliver all the available power to a 50 Ω RF termination, the measured impedance of the termination using an Autek RX vector analyst was found to be 50 +/0 Ω. Grid drive was adjusted to give a forward power of 40 watts as indicated on a Bird 43 wattmeter with zero watts reflected. I also had a 2.5 amp RF ammeter in circuit to measure the RF current into the load. With 40 watts indicated on the wattmeter the RF ammeter measured 0.9 amps with a load of 50 Ω; this gives 40.5 watts, very close to the 40 watts indicated on the wattmeter.

Leaving the tuning and loading controls undisturbed the transceiver was powered down. I then attempted to measure the input impedance of the π network. The Autek RX analyst is unable to measure above 1 kΩ so at this point I had to put my trust in Walter Maxwell's figures. He measured approximately 1400 Ω. I connected a 1400 Ω non reactive resistor to the input of the pi network and the impedance looking back

into the output of the network was measured at 52 Ω with the Autek analyst. Very close to the expected 50Ω. Now comes the interesting part, the termination is replaced with two 50 Ω terminations and a 100 Ω wire wound resistor all in parallel. The measured impedance of this load at the end of a short length of coax was 21+j5 Ω. The Autek analyst also measured this as an SWR of 2.38:1.

The transmitter was powered up again and the plate tuning and loading readjusted for maximum output power as indicated on the ammeter and power meter. The ammeter now read 1.6 amps; a quick calculation of power (P = I²R) into the 21 Ω load was 53.76 watts, the Bird Wattmeter now read 54 watts

forward power with the reflected power reading 14 watts. The plate voltage and current readings on the TS-830S were the same with the 50 Ω termination and the mismatched load after readjustment of the plate tuning and loading controls. I again powered the transmitter down and placed a 1400 Ω resistor at the input of the Pi network and measured the impedance at the output of the network; at first attempt I obtained a reading of 24+j4 Ω and with repeat attempts I obtained a spread of readings between 20-j7 to 24-j4. Using the wattmeter to obtain the maximum reading was not accurate enough to find the peak so I then used an HP410c RF voltmeter to indicate the maximum voltage across the load and obtained a reading of 21+j5Ω. The
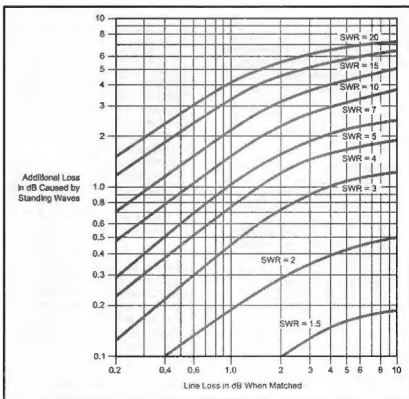

Figure 1: A graph showing the additional loss in dB caused by standing waves against line loss in dB when matched.

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conjugate of the load impedance 21+j5 Ω.

This is where we should take a look at the Maximum Power transfer theorem and I shall quote Everitt (2):

The maximum power will be absorbed by one network from another joined to it at two terminals, when the impedance of the receiving network is varied, if the impedances looking into the two networks are conjugates of each other.

Or put more simply *if the delivery of power decreases when the receiving impedance is increased or decreased we have a conjugate match.*

So what conclusion can we draw from the above experiment? The forward power reading of 54 W is actually the initial forward power of 40 W plus the re-reflected power of 14 W. We are not getting something for nothing; we are just adding the power that was reflected back to the incident wave.

The adjustment of the plate tuning and loading controls has matched the resistive part of the load and cancelled the reactance causing total re-reflection of the reverse power back down the line to the load. It is a common misconception that a valve amplifier with an SWR such as this will get a little hot in the face but handle the mismatch. However as can be seen from above the plate current and voltage readings are the same as for the 50 Ω matched condition; the tubes are totally unaware of any mismatch due to the re-adjustment of the pi network.

I will digress for a moment and have a quick look at the L match method of impedance matching that may shed more light on what is happening.

The tools needed are the following equations from the ARRL Antenna Book (1):

$Xs = QRs$ and $Xp = Rp/Q$

$Q = Xs/Rs$ and $Q = Rp/Xp$

$Rp = Rs(Q^2+1)$ and $Rs = Rp/(Q^2+1)$

$$Q = \sqrt{\frac{Rp}{Rs} - 1}$$

The L network is based on a technique known as series to parallel transformations. Taking values from

the load used in the transmitter experiment and for the moment I will ignore the +j5 reactance and work with the pure resistance of 21 Ω and match it to 50 Ω with an L network.

We first give the larger impedance the designation of R_p then determine the Q.

$$Q = \sqrt{\frac{50}{21} - 1} = 1.175$$

Then find the parallel reactance required

$X_p = R_p/Q = 50/1.175 = 42.55.$

So we now have our parallel form 50 Ω in parallel with a 42.55 Ω reactance, at 14.2 MHz the frequency I used for my tests

$$C = \frac{1}{2\pi f Xc} = 260 \text{ pF.}$$

Now convert to the series equivalent:

$Xs = QRs = 1.175 \times 21 = 24.675$ this is the required reactance to be placed in series to cancel the remaining reactance.

$Xs = 2\pi fL$

So $L = Xs/2\pi f$

In our case the frequency is 14.2 MHz so this is an inductance of 276 nH. Now taking the extra j5 reactance into consideration the required inductance will be 332 nH. So to match 21+j5 Ω to 50 Ω in parallel we need a 260 pF capacitor across the load and an inductance of 332 nH in series. While in this example the parallel reactance I made was a capacitor it could have been an inductor with the series reactance. The reactance values may be more practical one way or the other. If you are not so keen on the calculations there are numerous L network calculators available on the web.

Looking back to where we started, the π coupler in the TS-8305 can be considered simply as two L networks back to back. The TS-8305 has no trouble matching the 2.38:1 mismatch. So within the constraints of the values used in the π network a large range of impedances can be accommodated.

None of the reverse power returned to be dissipated in the tuning network or in the output tubes and all of the power returned to the load.

If the π network has insufficient range to match a particular load, adding an external matching device just after the transmitter will allow a greater range of impedances to be accommodated.

So where is the catch? If the transmission line has no loss then all of the power will be radiated regardless of the SWR, however if the power has to make return trips up and down a lossy transmission line then there will be considerable loss. This is where the handy graph from the ARRL Handbook allows us to see the additional loss due to SWR. See Figure 1 (3).

Again turning to the ARRL Handbook (4) a 30 metre [100 foot] length of RG-8 or RG-213 will have a nominal matched-line attenuation of approximately 0.6 dB at 40 metres [7 MHz]. Take a look at Figure 1. With an SWR of 3:1 the additional line loss due to SWR will be approximately 0.4 dB. This additional loss will be imperceptible at the receiving end. However at two metres this same length of cable will have a matched loss of about 3 dB plus an additional loss of about 1 dB due to the 3:1 SWR. Now *this is* lost power.

Solid state transceivers don't usually have the luxury of a π network output so what happens with them? Well yes they do get bothered with high SWR. Most solid state HF transceivers have a simple impedance matching transformer to match the 50 Ω transmission line down to a few ohms presented by the output transistors with no means of adjustment. However an antenna tuning unit immediately following the transmitter is a practical method to achieve the same result. The tuning unit provides the conjugate mirror in the same way as the π coupler did with the old valve rig.

There are some who regard placing the tuning in the shack and not at the antenna as poor practice, but for instance in the case of an 80 metre dipole it is not possible to obtain low SWR from band edge to band edge without some form of tuning. We amateurs operate in bands not on fixed frequencies; flexibility is necessary if we are not to be tied to small segments of our bands.

It should be stressed that a tuning

unit in the shack does not do anything to the standing waves on the transmission line, it simply allows you to re-reflect the reverse power back to your antenna. And the key to success is *low loss* transmission line. Open wire feeders are the very best. An SWR of 3:1 or less with reasonable lengths of low loss transmission line does not significantly add to the overall loss at HF assuming you keep your transmitter happy by some form of impedance match at the input to the line.

References:

1 *The ARRL Antenna Book*, 19th edition, page 25-6.

2 Everitt, *Communication Engineering*, 2nd Edition, McGraw Hill.

3 *The ARRL Antenna Book*, 19th edition, page 24-11.

4 *The ARRL Antenna Book*, 19th edition, page 24-18.

5 Walter Maxwell, Another look at Reflections.

6 Walter Maxwell, On the Nature of the source of power in Class-B and C RF amplifiers, QEX May/June 2001.

7 Grammer, The ways of Transmission lines Part 1, II and III, QST Jan, Feb, March 1965.

8 Walraven, Understanding SWR by example, QST Nov 2006.

9 Ford, The SWR obsession, QST April 1994.

10 http://www.w2du.com/

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OTY Two responses to 'A basic trap for young players'

From Wayne VK5YP

After reading the article about Richard (VK2XRC) Cortis' automatic antenna tuner fed whip and the failure to work, I got to thinking. The arrangement worked when the Terlin whip was used, so the base did not affect the operation then, so what happened?

It is reasonable to assume that the Terlin presented a correct match to the transceiver, that is a 50 ohms impedance, or thereabouts, thus giving an SWR of about unity. With these conditions, the voltage at the base with a transmitter power of 100 watts would be 70.7 volts.

When the arrangement was changed to a whip of fixed length and matched to the transmitter with an automatic tuner, the scenario changed dramatically.

The presented impedance of the whip will vary wildly with frequency,

but the antenna tuner is designed to match into loads between the values of 5 to 1200 ohms, therefore compensating for this impedance variation, while still presenting a 50 ohm load impedance to the transmitter.

Using the formula voltage = square root of (power*impedance), it follows that as the impedance at the whip base increases, so does the voltage at that point.

Using real values, if we use a power of 100 watts and the tuner has to match into an impedance of 1200 ohms, then the voltage that the whip base has to withstand calculates to 346.4 volts, which is probably not enough to cause a flashover.

When we look at the arrangement, the whip base is some distance up the path between the tuner terminal and the tip of the whip, therefore the

voltage at that point is considerably greater.

This voltage may be enough to cause a flashover or internal insulation breakdown at the base or at the coaxial cable connector. It is likely that if an ohmmeter is used on the base, it will be found that the insulation has broken down, therefore presenting a low resistance to the tuner and converting all of the transmitter power to heat and shunting any received signal to earth.

It is interesting to note that the matching SG-303 whip base uses a 20 kV insulator at this point. By using a piece of wood of sufficient length, Richard has inadvertently solved his problem, provided it does not rain. It possibly also explains why Terry VK8TM had the same problem with a similar setup.

Wayne Cockburn VK5YP

From Andrew VK1DA

Reading the article about the mobile antenna problems faced by Richard VK2XRC, I was puzzled by the reported behaviour of the antenna base. It worked on higher frequencies but was progressively worse as the frequency was lowered, i.e. on 14, 7 and 3.5 MHz. This behaviour seemed typical of a parallel inductor, not the suggested parallel capacitance. A parallel capacitance would affect higher frequencies adversely and would be progressively less significant on lower bands, the reverse of what Richard had observed.

I recall that some of the antenna mounts designed for CB use had an

included parallel inductor, intended to discharge static build-up and keep the whip at the same static potential as the car body. The inductance was sufficient to be irrelevant at 27 MHz but would be significant at frequencies lower than say half that frequency. This appears to be the way the "plastic insulated antenna base" originally used by Richard was behaving, i.e. the antenna became increasingly harder to feed at lower frequencies.

In antenna bases designed for 27 MHz, the inductance of the installed (and invisible) inductor was high enough to allow the antenna to work normally on 27 MHz, but as

will be appreciated, that inductance would present one eighth of the inductive reactance at one eighth of the frequency, very likely sufficiently low to drastically affect the input impedance of the antenna on 3.5 MHz. Similar effects would be in play on higher frequencies, progressively becoming less significant as the frequency rises.

If Richard has not already consigned the antenna base to the circular file, it would be interesting to know whether there is indeed a DC short circuit, indicating the presence of a parallel inductor.

Andrew Davis VK1DA

Amateur radio gets people talking

Tune-in to the world

The 2010 WIA National Field Day Saturday 23rd October 2010.

This event is being held as part of the WIA's centenary celebration year and has been initiated to promote amateur radio to the public.

Object
To promote amateur radio to the public, to introduce potential operators to amateur radio while working as many stations as possible on any and all amateur bands using a variety of modes.

1. Date
The 2010 WIA National Field Day (Field Day) will be held on Saturday 23 October, 2010.

2 Time Period
2200 UTC 22, October to 1000 UTC 23 October, 2010 (0900-2100 EDST 23 October)

3 Bands and Modes
All amateur bands permitted for the level of licence used to run the station.

National Field Day
Saturday, 23 October 2010

100 YEARS

The Wireless Institute of Australia

Phone, CW and Digital (i.e. SSTV, PSK31, RTTY, MT63 etc.) modes are permitted but contacts employing any digital mode are considered as one.

Repeater contacts and the use of IRLP, D-STAR and EchoLink are permitted.

4 Eligibility

The Field Day is open to all amateurs in Australia. Stations residing in other regions may be contacted for credit, but are not eligible to submit entries.

5 Categories

A *Public Station* is a station run by three or more amateur operators (which may be a club) operating on a single callsign from a public place, or club premises open to the public for the duration of the event.

A *Private Station* is a station which does not fulfil the requirements of Public Station and includes an individual operating portable, mobile or from a private residence.

6 Exchange

Serial numbers only commencing at 001 (RST is not required) followed by a suffix.

Public Stations should use a suffix of F for general contacts or G when a guest (non-licensed operator) makes their first contact.

Private Stations should use a suffix of H for a home, P for portable or M for mobile stations.

7 Repeat Contacts

A station contacted in a one hour block may be re-worked in the next one hour block using that particular band and mode combination.

NB To prevent waiting an immediate rework with a recently contacted station is permitted when a guest (non-licensed) operator makes their first contact from a Public Station using the G suffix. Subsequent contacts will be treated as normal contacts.

8 Logs

Public Stations and Private Stations will keep a log for each transmitter operated. Entries should include UTC time, call sign, mode, number sent and number received.

9 Scoring

Final Score = Contact points + Bonus points (detailed below)

Contact Points

All standard contacts regardless of band or mode count for one point each.

Where a guest (non-licensed person) makes their *first* contact at a Public Station and records their name and telephone number in the log, an additional 50 points will be awarded. The G suffix must be used for this exchange.

Bonus Points that may be awarded to Public Stations

An additional 20 points will be awarded for each amateur assisting in the operation, promotion or other activities at the station. All participants must enter their name, callsign and the nature of their involvement in the logbook.

An additional 200 points will be awarded to a station which operates in a prominent public location (i.e. shopping centre, or adjacent to a public facility). A supporting photograph of the station must be submitted with the log.

An additional 100 points will be awarded for each transceiver for which a log is submitted provided that the transceiver is connected to its own dedicated antenna. Handhelds are not eligible for these points but may be used during the field day.

Where the operational transceiver is powered by renewable energy (i.e. solar, hydro, wind, human powered) an additional 200 points will be awarded. A supporting

photograph of the power source must be submitted with the log.

Where the operational transceiver is powered by a non-renewable portable power source (i.e. generator, batteries) an additional 100 points will be awarded. A supporting photograph of the power source must be submitted with the log

A station logging a contact using CW will be awarded 100 points.

A station logging a contact using a Digital mode (RTTY, PSK32, EchoLink etc) will be awarded 100 points (once off).

Where a station operation is accompanied by publicity the following points will be awarded:

Where the station is referred to on a non-amateur television station(s) – 200 points per reference.

Where the station is referred to on a commercial radio station(s) – 200 points per reference.

Where the station is referred to in a press publication(s) – 200 points per reference.

Where the station is visited by an invited Government (including local Government) official (i.e. Member of Parliament or local Mayor) – 100 points per official. A supporting photograph of the visit must be submitted with the log.

Where the station is visited by an invited member of a community emergency service (i.e. CFA, SES) – 100 points. A supporting photograph of the station must be submitted with the log.

Where the station hosts a structured amateur radio educational activity for five or more children below the age of 18, (i.e. formal training, kit building, licence examinations) 200 points will be awarded. A supporting photograph of the activity must be submitted with the log.

Where the station provides a public information table to promote amateur radio – 100 points.

Where the station submits a video, photographs or print articles describing the activities of the Field Day operation at the station – 50 points will be awarded for each type of presentation submitted up to a maximum of 150 points

Awards

In order to be eligible for an award the station must have registered as a participant on the WIA National Field Day Web Site.

All registered participants who submit a log will each receive a participation certificate.

The three highest scoring Public Stations will each receive an award certificate.

The three highest scoring Private Stations will each receive an award certificate.

The WIA National Field Day Co-ordinator will judge photographs received based on general appearance and presentation of participants, location and equipment layout, and award certificates to the three best public station photographs, videos and articles submitted.

Miscellaneous

By submitting an entry you agree to be bound by these rules and agree that the judge's decision on the interpretation of the rules, awarding of points (including bonus points), certificates and awards will be final and that no correspondence will be entered into. The judges may modify these rules in order to preserve the aims of the field day.

The copyright in all material submitted must be held by the submitter and the WIA is expressly authorized to use the material for promotional purposes.

Logs and supporting evidence for bonus points must be received by the National Field Day Co-ordinator at the Wireless Institute of Australia, nfd@wia.org.au by 5.00 pm on 23 November, 2010.

ar

Logs and supporting evidence for bonus points must be received by the National Field Day Co-ordinator at the Wireless Institute of Australia, nfd@ wia.org.au by 5.00 pm on 23 November, 2010.

OTY   Amateurs helping amateurs

I would like to extend my sincere thanks to the following amateur operators for their assistance on Sunday 1 August: Stuart VK3FSTU, Nathan VK3FUZZ, Gary VK3LCD and Dennis VK3FDAS.

While on a camping trip, my son and I managed to bog our respective 4x4s. My son's Patrol sank up to its axles in soft mud and my Pathfinder bottomed out in a deep puddle on a track whilst heading to Hall's Gap to see if I could get some recovery gear.

I was lucky enough to be able to trigger the Mount William repeater and placed a call for assistance. Stuart came back first but his signal was too scratchy for good communications. Then up popped the other three stations; between them contact was made with the Parks Victoria Ranger and the Police

The happy ending is that I was easily towed out. The Patrol

had to be dug out, as the Ranger did not want to venture too close to the muddy area.

Lessons learnt:

1. You can always rely on fellow amateurs to be there for you in time of need. To quote one of the above (I cannot remember which one): "We might be b_ _ _ _ y amateurs but we do a professional job".

2. Do not plough through water hazards without checking the depth etc beforehand. My Pathfinder bottomed out on the LPG tank strung under the rear of the vehicle. Had it not been for the LPG tank I would have made it through.

But amateur radio saved the day.

Again my thanks to the four amateurs who came to my aid.

Ron VK3JRC

ar

Foundation Corner 11

The good, the bad and the ugly: the G5RV antenna

Geoff Emery VK4ZPP and Ross Pittard VK3CE

Most of us are fortunate these days to get onto the HF bands with a multi-band rig. Natural curiosity makes us want to try the bands at our disposal and then it comes to the decision as to what is going to be an effective antenna. Arguments abound as to whether various HF multi-band antennas are compromises or just dummy loads that radiate a little signal.

There are obvious limitations to the amount of yard space that people have and some people are forced to consider commercial multi-band vertical antennas, neglecting the requirement that these require good soil conductivity or an effective counterpoise/ground plane system to achieve best results, although some DX expeditions have had fabulous results with vertical antennas mounted at the ocean's edge with salty wet sand beneath them.

There is a trend to market vertical non-resonant antennas for field use or limited space. These "aperiodic" antennas are designed not to be resonant on any band of interest. They are untuned structures, as far as the amateur is concerned. You will see reviews and analyses of these aperiodic antennas that show they are lossy on most bands below 20 metres. But you will also be able to see that the military uses this type of antenna, both on land and sea, because of the large range of frequencies they can accommodate.

What I am trying to impress is that each installation is different for each and every one of us and pragmatism rather than theoretical efficiency often defines our choice.

One antenna that can be successfully home brewed and used has a long history in the amateur literature, and was designed by Louis Varney G5RV (SK). Originally designed for 20 metre operation when 75 ohm coax and twin lead was the norm for feeding doublets, the G5RV continues to be home brewed and manufactured commercially, after 50 odd years. With the advent of commercial ATUs and now automatic ATUs, this antenna is beloved by probably more users than it has detractors as a cheap and reliable sky hook which can be used from 160 to six metres.

So what is a G5RV? Generally you can describe this antenna as a doublet or dipole antenna with a parallel tuning stub. The tuning stub is fed coaxial cable through to the ATU. As a lot of the literature will read dates to the invention of this antenna or is pre-metric, for simplicity I will use the original imperial measurements.

The dipoles are 15.54 metres (51 feet) on each leg, 31.09 metres (102 feet) overall, see Figure 1. Depending on the *velocity factor* of the parallel line used, the tuning stub is around 9.14 metres (30 feet) long. The coaxial cable can be any length. I have seen this antenna mounted a little over head height but it is recommended that you aim for as much height as possible above 10 metres. Many amateurs use these antennas whilst on the road and use whatever supports, be they saplings, trees or whatever, that might be available. The other advantage is that this antenna works well mounted as an inverted V.

Obviously, the closer to the ground that the wires are the more effective capacitance exists and the more detuning there may be of the antenna. However, in practice, using an ATU largely overcomes this problem. It is not theoretically perfect but if you look at the efficiency of helically wound antennas mounted on the bumper bar, you will be surprised at the effectiveness of the G5RV. Many land mobile HF services depend on these antennas

Centre fed dipole

450 ohm ladder line

A

B

Figure 1

Not drawn to scale

Approximate dimensions for G5RV variants

G5RV variant	Bands covered	Dimension A - Dipole	Dimension B - Feedline
Standard	10 m to 80 m	31.09 m (102 feet)	9.45 m (31 feet)
M or double	10 m to 160 m	62.18 m (204 feet)	19.51 m (64 feet)
Junior or half	10 m to 40 m	15.54 m (51 feet)	5.18 m (17 feet)
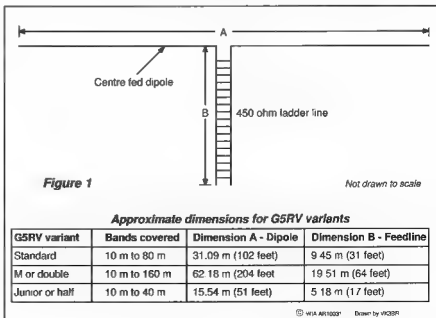
Figure 1: Dimensions for three G5RV variants.

and the signal gets through. Ask your 4WD club member if HF works. Even the amateur "screwdriver" and the land mobile auto-tune antennas share a common design heritage and analyses of their efficiency does not deter people from spending hundreds of dollars for what is found to be an effective antenna.

(Although not available to Foundation calls, joining the inner and braid of the coaxial cable and feeding as a single wire allows use at 160 metres. I went on HF as a "Z" call using a

home brew G5RV and made my first contacts on 160 metres using the same antenna. I currently use one with the apex about 14 metres, and the ends about 1.5 metres, from the ground – Geoff VK4ZPP)

What do I need?

Apart from some way of hanging the antenna, you will need enough guy rope (non-metallic) to hold your G5RV and allow you to lower it to the ground. You will need two end insulators. The larger size "egg" insulator made for electric fences is suitable (see Foundation Corner 2). I have used ceramic "eggs" and even short lengths of PVC tubing, drilled at each end. You will need a centre insulator, and refer to Photo 1 for an example, which must also clamp and hold the terminations, pig tails and parallel line. You can make a suitable triangle shape from materials like electrical power board material, a piece of white synthetic kitchen chopping board, PVC sheeting, Lexan*, or use two small egg insulators with short wire ties to the feed line.

To make the join between the parallel
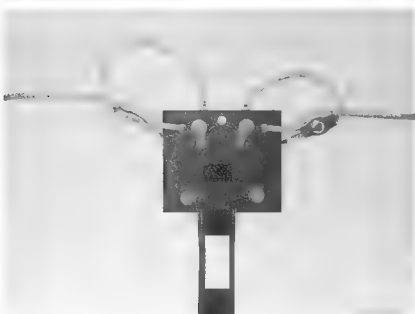
Photo 1: An example of the G5RV centre insulator and feed support.

line and the coax, combine a choke balun with terminations. With a piece of 75 - 100 mm diameter PVC about 250 mm long, drill two holes large enough to feed the coax from the inside of the tube and wind as many turns of cable as will fit and take the cable through the second hole. If you wish, place a chassis mount SO-239 at the bottom, and at the top drill two 3.5 mm holes into which are inserted 3.2 mm (1/8 inch), or M3, brass metal threads with two nuts. Select the spacing for the metal threads to suit the width of the parallel line wires. The braid of the coax connects to the outside of the SO-239 and the core to the centre pin. At the top, either connection of coax goes under the head of the metal thread. On the outside the first nut is tightened against the PVC and after soldering loops on the end of the bared wires of the parallel line, they are secured by the second brass nut. Also have a look at the balun described in Foundation Corner 3.

This makes a tidy joint and follows Varney's later recommendation of using a choke balun to go from the unbalanced coax to the balanced parallel line. You can also use an "ugly" balun made by coiling coax and securing it by cable "zip" ties.

Thanks go to Geoff VK4ZPP for sharing his observations and experiences on building a G5RV. For further information on setting up and fine tuning your G5RV, I suggest having a look at Owen Duffy's web page (Reference 1) which has a detailed step by step guide, and the original G5RV article can be found on the VK3CE web site in the download area (Reference 2).

That is it for this month: keep the feedback and ideas coming.

References

http://www.vk1od.net/antenna/G5RV/optimising.htm

http://vk3ce.no-ip.info

OTY Inspectors

Dear friends,

I read with interest your article on the inspectors in the July AR. I offer a small anecdote that may raise a smile to readers; names and locations have been omitted.

I was living in a large rural town in WA in the early 1980s and we used to have frequent visits from the Inspectors as they conducted licensing for professional fishermen. I got quite friendly with one of the inspectors who brought up a tape recording of an interception that had been made in Perth.

He and members of his team had been recording an illegal pirate FM radio station in a northern suburb of Perth. Over a beer, we listened to the recording as the announcer proclaimed the frequency and the "great hits of the past" that he was playing.

Suddenly, one could hear in the background someone knocking, the door opens and a female voice stated "Bob! There's a policeman at the door!"

This was immediately followed by the Sounds of Silence.

Regards,

Peter Scharf VK6APS

VK7news

Justin Giles-Clark VK7TW

Email: vk7tw@wia.org.au
Regional Web Site: reast.asn.au

We start this month with congratulations to Vince VK7VH, who is the first VK7 recipient of the VK100WIA Centenary Award.

Last month saw the International Lighthouse and Lightship Weekend and there was a great turn-out for VK7 with six lighthouses being covered at the time of writing. These included: VK7WCN at the Point Home lookout, VK7KW at the Mersey Bluff lighthouse, VK7VTX at Pot Boil Channel on Flinders Island, VK7FWAY and VK7FEJE at the Table Cape lighthouse, VK7MX, VK7FYMX and VK7FLAK at the Low Head lighthouse and VK7ZM at the Rocky Cape lighthouse. Congratulations to all involved for a great activation.

Repeater Update

Hayden VK7FAY lets us know that the 70 cm repeater VK7RCH has moved to Grey Mountain in the Huon Valley covering the Huon and Channel areas. It has been linked to VK7RAA at the moment, however requires some fine tuning over the coming months due to pager interference. A big thank you to Tasmanet for the repeater site space. The repeater transmits on 438.575 MHz and receives on 433.575MHz, with no tone required.

Northern Tasmania Amateur Radio Club

NTARC's June meeting was a presentation by Phil VK7JJ who demonstrated the Apple iPad. From reports the presentation was well received with Phil having to wipe drool off the device many times...HIHI. Joe VK7JG also gave a presentation about some antennas he has been using along with photos from his latest holiday including some of large HF antenna arrays on the mainland. Thanks Phil and Joe.

North West Tasmanian Amateur TeleVision Group

Congratulations to Greg Radford who recently was assessed for his Foundation licence and was successful. Greg has received the callsign VK7FJFJ. We welcome Greg to this great hobby of amateur radio and wish him successful DX.

WICEN Tasmania (South)

Thanks to Roger VK7ARN for the info for this report. VK7s Peter TPE, Stu NXX, Garry JGD, Peter KPC, Roger ARN, Chris FCDW and Michael FMRS together with harmonics Jessica and Nicole were all involved in the Southern Equine Endurance event at Cliftonvale in Southern Tasmania on the weekend of 17th and 18th July. Weather was good with cold nights and warm days and some of the group even staying overnight and enjoying roo steaks on the campfire BBQ prior to returning to Hobart on the Sunday.

Apparently from this event and the many equine events in which WICEN has been involved, there has been contact made from Western Australia Equine eventers wanting to know how they can get the same great community services from AR operators in WA. WICEN's great job also received high praise in a wonderful thank you email from the organisers. Congratulations to all involved.

Photos of the event can be found at: http://tas.wicen.org.au/Photo_pages/clifton_vale_0107.html

Radio and Electronics Association of Southern Tasmania

REAST's July monthly presentation night took the form of a constructor's night with the building of twenty simple optical transceivers. We had a great roll-up and a full house of soldering irons going at a great pace. Young and old alike all built and got working their transceiver with help from experienced home brewers and constructors. The unit uses three ICs, red LED for the transmitter, a BPW-34 IR photodiode for the receiver and a handful of passive components. Two of the kits even went to VK5 for a science fair!

It was a fantastic night with a full house of constructors all eager to get into building their transceivers. Mike VK7MJ (the kit's designer) brought along his test transmitter and the author brought along his big optical transceiver to send and receive signals along with a range of lenses both traditional and Fresnel and reflectors to demonstrate how the lens or reflector provides gain and increases the distance that can be worked.

From the feedback it was a wonderful night and we will certainly be planning another for next year.

The details of the project are available at: http://reast.asn.au/events.php#constructornight ar

Four eager constructors with obligatory supervisors...HIHI

Spotlight on **SWL**

Robin Harwood VK7RH

Spring Sunspots, Darkest Africa, East Asia, Shepparton

Spring is almost upon us and propagation is slow to return to normality. While I am writing this there is a major solar storm happening, severely disrupting communications. It is so frustrating not to hear signals on the higher frequencies. One does speculate whether the theories of an 11 year cycle still hold up after all this as it has gone longer than is the norm.

I have been really listening to 40 metres on my very modest setup and it has been interesting noting where signals do come from during the day.

The local early morning hours see European and Asian signals come via the short path and a few Africans as well. The latter have mainly been logged as intruders to our exclusive allocation from the Horn of Africa. As previously reported here, Ethiopia and Eritrea have been locked in a war for decades and Somalia as well has degenerated into inter-tribal warfare. This continuing instability has spilled over into neighbouring countries such as Kenya, Uganda and the southern part of Sudan.

Civil warfare again based on ancient tribal animosities has continually plagued The Congo, Burundi and Rwanda, frequently erupting into genocide. No wonder international broadcasters are increasing their output to Africa. The Internet will be out of reach for the average citizen in Africa for some time and hence streaming programming to audiences there is a non-event.

If you are interested in hearing African signals, Ethiopia is easily heard on 7110 up till 2100. Eritrea is heard on 7165 but Ethiopia has also been known to use the channel. Both

nations are also jamming each other and international stations as well, such as the VOA.

As a predictable result, both nations are known to shift about in an attempt to avoid jamming. Deutsche Welle has been operating a major shortwave base in Kigali for some time, even during the genocide in 1995. Kenya left shortwave some years back but there have been infrequent reports of Ugandan shortwave senders. The sender on 7125 is reported to be Bangui, in Chad, next door to Sudan. It has been heard in North America and Europe.

The North Koreans have been heard on 7200 for some months now but their audio is terrible. There is a problem within the sender with a nasty heterodyne drifting about. Burma also has been heard underneath and is in the clear after the annoying Korean sender goes off. However it too does not seem to stay on the channel for long. This is at 1250 UTC.

I can confirm that the former Radio Australia site on the Cox Peninsula in the NT has indeed been completely dismantled. The senders have been moved to Guam or Shepparton and minor ancillary equipment to Kununurra.

Also there have been moves within the US Congress to save the Greenville shortwave complex but it is unclear if it is too late as closure is slated for the end of October.

Well that is all for now. My thanks to John VK6BJ for his input. Until October and the warmer weather, good listening and 73.

Robin VK7RH

SilentKey

John Woodward

I wish to notify you of the sad passing of my father, John Woodward, formerly VK2WW, on 4/8/2010 aged 88. He died in the St. George Public Hospital Emergency Ward from double pneumonia.

He leaves behind wife Betty, daughter Janis, son Roger and grandsons Mark and Brett.

He was much loved and is sadly missed.

Submitted by Roger Woodward VK2WW, formerly VK2DNX.

A generic PC interface for the amateur experimenter

Paul McMahon VK3DIP

Part 1: Introduction and Build

Outline

This relatively cheap and simple interface allows the amateur experimenter or home brewer to explore and work with the increasing number of circuits and modules that require computer control to function. In particular it is targeted at I2C components but also handles other digital interfaces such as that used by the AD985x DDS series.

As a bonus it also optionally provides:- an RF dB level meter good to 500 MHz plus, a frequency meter handling up to 1 GHz, two analogue voltage measuring inputs with 10 bit resolution, an analogue output with 8 bit resolution, plus a 5 volt supply available to power devices under test.

All these items are controllable and readable from the PC using a simple human understandable set of commands. In addition I have provided some software with source, using the freely available Microsoft Visual Basic 2008 Express, for a control panel for the device on the PC which provides a one page view of what is happening with the interface along with logging and simple scripting abilities.

Introduction

This project originated from my desire to 'play' with an analogue television tuner module recovered from a junked PC TV card.

I had initially thought of making either a frequency selective level meter, or maybe a form of spectrum analyser. Before getting to this though I just wanted to try out the tuner to determine its capabilities. After several frustrating attempts to use various converters attached to the parallel port of a desktop PC, I decided there must be a better way.

The fact that I would have liked to use my netbook to do this work, which only has USB ports, was also a factor. A quick search of the web turned up many interesting interfaces built and used by hams, almost all of which used some form of microcontroller, but none of them seemed to be a perfect fit.

The available designs fell into two categories. The first and most desirable designs used later model advanced microcontrollers which had the ability to natively talk USB plus lots of other features. For me the problem with these boiled down to cost and availability. The second category of designs used older style devices and did not offer the flexibility or features I sought.

In the search for something both cheap and function rich, I came across the PIC 16F88. This chip is actually used in some of the PICAXE family of devices. It has lots of features and matched the power of many of the previously published designs in all ways except for not having inbuilt USB functionality. Even better I could buy them at $5 each (plus postage, from NSW) from an eBay shop, refer Reference 1. When added to a cheap USB to serial converter also bought from another eBay shop, for under $5 including postage, see Reference 2, you have what I think is a very good package.

So I designed a PC board, built it up, and it worked well. I also found I had space left in the on-chip memory so I started adding additional functions, one thing led to another and this article is the result.

The completed interface is shown in Photo 1 along with the matching screen on the PC in Photo 2.

Overview of Capabilities

Firstly, what this interface is not. It is not, though it could possibly be hacked to be, an
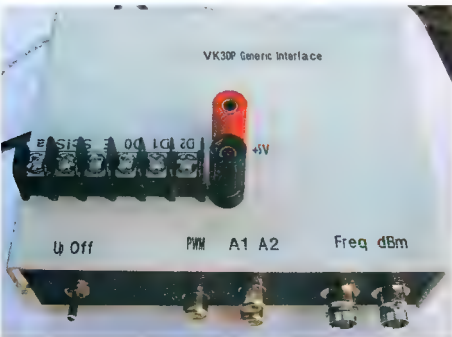
Photo 1: The finished interface in a box.

interface for any commercial transceiver for controlling band, frequency, and so on. It is also not a soundcard interface for a Software Defined Radio. What it is, is a means for an amateur on a PC to easily talk I2C or similar protocol to a chip or module to make it do things. It also has some additional features to help during testing of the chip to determine if it has done what it was told to do. It is a sort of portable general purpose mini test bench or suite of test equipment to help develop more dedicated equipment

The interface as presented here has the following features:

- I2C Master two-wire interface with built in pull up resistors, for talking to TV tuners and a myriad of other things.
- Pseudo SPI three-wire interface as used by the AD985X series of DDS chips.
- Or alternately a generic three-wire digital interface, with each bit individually switched, to roll your own.
- Two 10 bit analogue inputs, setup in my prototype for 0-10 Volt measurements with a 10 M Ohm input impedance.
- An AD8703 based RF dB level meter with a 70 dB plus range to well over 500 MHz.
- A pre-scaled frequency meter usable to at least 1 GHz.
- A controlled (8 bit/256 level) analogue voltage out source.

- A 5 volt supply to run the items under test.
- High speed USB connection to PC.
- A simple but powerful human readable command language so that the interface can be debugged or tested using hyper-terminal or an equivalent dumb terminal software package
- Configurable PC software for those who do not want to build their own with numerous display options, tracing, logging, and simple scripting.

Circuit Descriptions – How it works
As you will see, I made the interface modular so that I could mix and match various components as required. In the full house case there are five modules, four built from scratch and one (the USB to RS232'ish one) extracted from something else. In the following sections the functioning of each module is discussed.

Main Board
The heart of the interface and the only thing you need to build if all you want is the I2C is the main 16F88 board. The circuit for the main module is shown in Figure 1.

You will see that apart from the 16F88 PIC there are only a handful of resistors, capacitors, a 10 MHz crystal, and two small voltage regulators. While this PIC is capable of operating free running without a crystal, as this interface has a frequency measurement facility I wanted it to be as accurate and stable as possible I chose 10 MHz simply
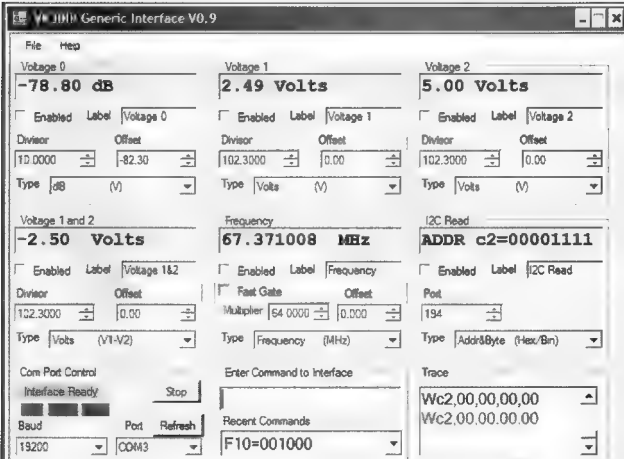
Photo 2. The PC control software
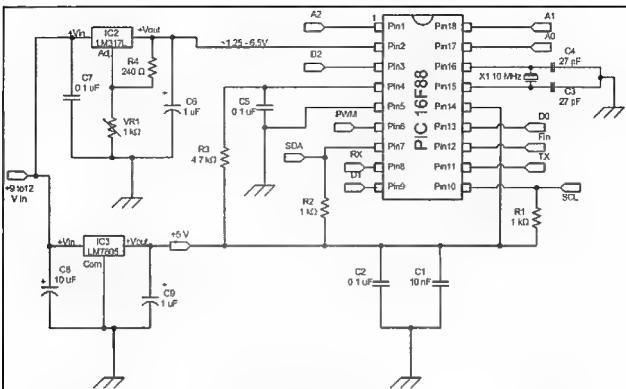
Figure 1: The main PIC board.

because that was a frequency I had some crystals at hand. If you want to change this to suit what you happen to have available, and have access to PIC Simulator IDE, see Reference 3, the full source code etc is available on my web site. Refer Reference 4.

The LM317L regulator is used to set the positive voltage reference value for the Analogue to Digital inputs. With the resistor values shown it is possible to set this value anywhere between about 1.25 volts and 6.5 volts. Basically being a 10 bit A/D conversion the 16F88 has 1024 levels that it will quantize the analogue input into between 0 volts and whatever is set as the Positive Reference Voltage (Vref+).

In my case I chose to set this at 2.56 volts for a number of reasons:

- It is low enough that I can use readily available single supply Op Amps like the LM324, which would have a problem with swinging above 3 and a bit volts on a single 5 volt supply.

- 2.56 is a nice 'binary' number that will make the maths easier. That is, 1024 levels in 2.56 volts gives 2.5 millivolts per level.

- 2.56 is close to the highest voltage available out of an AD8307 thus maximising the available resolution.

If you want to use some other reference value then you will also have to look at possible changes to resistor values on the analogue board.

A description of the code in the PIC 16F88 is too big for this article. Those interested in how it works can download the source and read the comments, refer Reference 4. It was written primarily in PIC Simulator IDE Basic, refer Reference 3, with a little bit of embedded assembler for the timing critical bits such as the frequency measurement calls.

Figure 2: The AD8307 RF Level Module.

RF Level Module AD8307

The circuit around the AD8307 to provide an RF level indication is basically the same as I used in Reference 6. It is shown here in Figure 2.

The only real differences are that I added a 100 ohm resister in series with the output to help protect against accidental shorts. Also, as I made a printed circuit board in this case, it was easier to use two 100 ohm resistors in parallel on the input, rather than the three 150 ohms used last time

For other details of this component refer to Reference 6.

Pre-scaler Module

While the basic 16F88 itself as programmed will provide an up to about 16 MHz frequency meter function (at logic levels), I was interested in higher frequencies and more sensitivity. The circuit of the pre-scaler I came up with is shown in Figure 3.

This pre-scaler is not new, it is basically that used in many of the designs present on the web for PIC frequency meters. It uses the SAB6456 configured as a divide by 64 with a single transistor level shifter to convert the ECL output levels from the SAB6456 to the CMOS/TTL levels required by the 16F88. I used a BF199 because I had a few of them but pretty much any low level NPN RF transistor with a Ft of a couple of hundred MHz will probably do. The only part of the circuit which may require some playing with is the value of R2 which may have to be chosen to suit the particular transistor used. The idea is that R2 is chosen so as to bias the transistor so that the DC output voltage (on the collector with no signal in) is at about mid supply, in this case about 2.5 volts. Doing this maximises the output voltage swing from logic high to low. I have used this circuit a number of times and in each case I have found that with a BF199 a 33 kΩ resistor does the job.

As in the AD8307 case, an on board voltage regulator is used to limit switching noise from getting back on the DC power supply lines. In both cases in the prototype, simply because I happened to have them to hand, I used low voltage dropout versions of the 5 volt regulators or LM2931-5. If you want you can happily use the more garden variety LM78L05 part with the only changes needed being that the 100 uF output filtering capacitor can be decreased in value down to about 0.1

uF and the input filtering capacitor increased to 0.33 uF or greater.

Analogue Module

The analogue voltage interface circuit I used is shown in Figure 4.

This is the circuit where it is most likely that you might want to make some resistor value changes. The circuit can be seen to be in four parts, one for each op amp in the LM324 quad op amp. One of these is a simple voltage follower, that is, one to one. This case provides a buffer function between the output of the AD 8307 and the PIC input.

Two of the other circuits are basically identical as they provide for the scaling and buffering of the external voltage measurement inputs to the PIC. For these circuits the values shown are what I used to give me 0 to 10 volts in with a 10 MΩ input impedance, given the 2.56 full scale value set by my choice of Vref+. I chose 10 MΩ because it is a common value used with digital multimeters. This does make the resistors a bit harder to come by as the 2.2, 3.3, and 3.9 MΩ ones are only available in 5% carbon rather than 1% metal film at places like Jaycar. If you wanted to stick with 1% metal films then you could just divide all the resistor values by 10, that is, 2.2 MΩ becomes 220 kΩ, and so on, and the input impedance would be 1 MΩ which would be similar to that of older analogue meters which
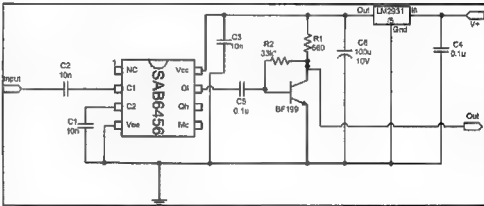
Figure 3: The pre-scaler module
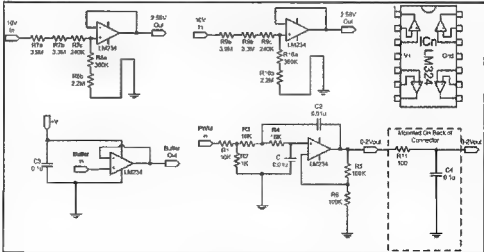
Figure 4: The analogue module.

typically had 100 kΩ per volt (100 k x 10 volts = 1 MΩ). In my case I was happy enough with the 5%.

The 10 (or 1) MΩ input impedance also means that for each additional 10 volts of full scale I want I just have to add a 10 (or 1) MΩ series resistor, that is, a single additional 10 MΩ in series gives 20 volts full scale, two gives 30 volts and so on. Because of the setting of 2.56 volts as my reference level I needed to use combinations of resistors in series to get the values I required, however my experience is that doing this (while it doesn't look as neat) is quite a bit more robust than using a trimmer and having to set it.

The final equation of the LM324 is used to both filter and buffer the 0 to 5 volt Pulse Width Modulated (PWM) output from the PIC. Again a simple voltage divider is used at the input to the DC coupled active filter to set the voltage level such that the upper voltage swing level of the op amp is not reached. In this case the division is approximately by 5 to put the peak 5 volts down to a one volt level.

The active filter which follows is basically the 1 kHz example from the LM324 datasheet. It is directly (that is, DC) coupled and has a voltage gain of 2. The PWM output frequency of the PIC is set at some 39 kHz so that the 1 kHz filter does a good job of converting the variable duty cycle 39 kHz signal input to a variable level DC output. Because of the gain of 2 we end up with 100 percent duty cycle giving 2 volts, and 0 percent giving 0 volts with 8 bits (or 256 levels) in between. Note, to prevent some instability and to further clean up the DC output, I added an additional off board R-C filter stage.

USB to RS232 Module

The other primary module in the interface is the RS232 to USB conversion module. As mentioned above I recovered this from a cheap converter purchased off eBay. To understand why I was willing to cut up the converter, it is necessary to understand a bit about how typical micro-controllers and similar devices tend to implement RS232 support.

Firstly a true RS232 interface uses 3 to 25 volt bipolar voltage signalling. Basically this means that a mark or space, the RS232 equivalent of a binary logic 1 or 0, is represented by a negative line voltage for mark and a positive one for space. While the specification mentions values of 3 to 25 volts, typically values like +/-12 volts are used. Creating these line voltages in equipment with a single power supply takes some fancy circuitry using voltage doublers and the like, and

the most common way of providing these interfaces is to use something like the MAX232 single chip solution.

This chip provides both the voltage doublers and so on to produce the dual supply voltages from the typically lower, say 5 volt, supply rail, and the line drivers and receivers capable of sinking and sourcing some reasonable currents on the other. These sorts of chips have become quite ubiquitous, so items like the PIC 16F88 are built basically assuming that if you want to use RS232 you will include one of these in your design.

You may also have noticed that the standard says a logic 1 or mark is a negative voltage and a 0 is positive, the line drivers and receivers in chips like the MAX232 also have an inversion function to invert the usual logic 1 = high setup, so even if the PIC did produce the correct voltage levels it would be the wrong way around.

Enter the USB to RS232 converter. These devices are typically intended to allow access to RS232 interfaced devices such as cameras or GPSs, or the like, on things like laptops that lack an RS232 port. In practice these things are often made with specialized micro-controllers which for the same reasons as in the PIC case tend to assume the use of something like the MAX232. So when using a USB to RS232 converter to connect to a PIC based product, the chip line up could typically be something like PIC to MAX232 to another MAX232 to RS232/USB chip. Obviously the thing to do if you were producing a matched set of both ends of this communication path and you wanted to save some money, and you were happy that it would only work over relatively short distances, would be to just leave out the two MAX232s as they basically just cancel each other out, and this is very often the case with things like mobile phones. Some manufacturers of cheap RS232 to USB converters just assume that this is the case anyway and leave the MAX232 out sticking with the inverted logic level version of RS232.

So if you have bought a RS232 to USB converter some time in the past and could not make it work with your GPS or what not, then this is probably what you have purchased.

I bought a sample of three different converters all obtained for a similar price from eBay, all moulded in the same blue translucent silicone rubber stuff, all looking pretty much identical on the outside , and all strangely enough with the identical small CD of driver for all sorts of things USB.

Figure 5: A generic MAX232 circuit.

Opening them up revealed one of them had no MAX232 equivalent (which was why it did not work with my GPS), one had a small sub board with two transistors to do the inversion but no bipolar supplies (it relied on the other end doing that work), and one had a slightly newer version of the USB-RS232 chip which supposedly automatically detected which way around you wanted it and would invert the lines if it detected a true RS232 level coming from the far end. This last one still did not have the dual supplies source and still relied on the far end to do a lot of the work.

Worse from my point of view this last one was very dependent on the order you switched things on, that is, if you plugged in the USB connector before powering up the RS232 device, it would guess the wrong polarity.

In short I had all these otherwise useless converters I had bought from eBay to try and use my GPS with my netbook, so reusing the bits seemed like a good idea, and yes, obviously I did not put in the back to back MAX232s.

The devices I ended up using were based on the PL-2303 chipset.

Optional MAX232

If for one reason or another you want a standard RS232 interface then you could use as discussed above a MAX232 circuit. A version of this is shown in Figure 5.

In the case of this interface only two of the four inverters in the MAX232 need to be used. The other two inverters are shown in the optional box wired to act as a repeater circuit. These are not necessary for this current project but were used in an earlier project to enable both a PIC and a PC to be able to connect to a single serial GPS source. The diodes, if fitted, act as a simple OR gate so that we do not have two logic outputs fighting each other. In the case here, again the items in the optional box are not required even if you decide you need real serial; I have left them shown here because there are spots for them on the board described below and some people may be interested in what was the purpose of the unused holes.

Building it

The first step in all cases is to produce the relevant printed circuit boards for each module desired. If all has gone well in the magazine publishing process, you should find below full size artwork suitable for my favourite production process which is the laser print or photocopy to special paper (single sided, coated, matt, inkjet photo paper), iron on, wet rub off paper, and etch. If you need further details of this process you will find some photos and information on my website at www.yagicad.com Along with the software in Reference 4, I will include copies of the PCB artwork just in case the print on your copy of *AR* is not quite dark enough.

You will note I produce my PCB designs with a standard drawing package rather than specialist PCB software so they are not quite as professional looking. The look however, does not make much difference to how well they work, and I just find this way works quickest for me.

Main Board

The main board is a single sided one and the PCB artwork for the main board ready for iron on is shown in Figure 6.

After etching and drilling, the components can be mounted in accordance with the overlay in Figure 7.

In the photo of the assembled board shown in Photo 3, you will see that I used a socket for the PIC to facilitate taking it in and out to reprogram it if necessary. You will also see a fairly robust heatsink on the LM7805 regulator as this device also supplies the externally available 5 volts.

You will also note in this photo I

Figure 6. Full size main PIC module board.

Figure 7. Component overlay for main board.

Photo 3. Main PIC board.

had not yet mounted the crystal or associated capacitors, however hopefully the placement of these components is obvious from Figure 7.

Figure 8: Full size board pattern for AD8307.

The PIC 16F88 needs to be programmed with the firmware from Reference 4. If you have a programmer yourself this is easy, if not ask around friends or people at your radio club and someone will be able to do it for you.

RF Level Module AD8307
This module can be built as in Reference 6 or if desired using the PCB as shown in Figure 8.

To fit everything into the small box I used for the overall unit, the new PCB is probably the easiest. In this case the PCB is made with double sided material with one side being a solid (that is, un-etched) earth plane. For the small number of components that are through hole mounting on this board, those leads not connecting to earth will need to have the copper on the earth side removed from around the hole, which I usually do with a 3-4 mm drill bit held in my hand and given a few turns. See Photo 4 for details.

The majority of the components are surface mount and are mounted directly on the bottom of the board. The simplest way I have found for soldering the 8 pin SOIC AD8307 is to first heavily, but evenly, tin the pads and then while holding the SOIC in place, tack one leg in place using just the soldering iron and no additional solder. The SOIC can then be carefully positioned so that all the other pins align, then again using only the slightly wetted soldering iron touch each of the pins until the tinning flows, do not apply more solder. If you do happen to make a solder bridge, usually
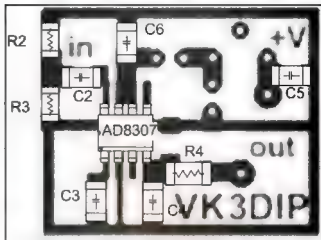
Figure 9: Component overlay for surface mount side of the AD8307 board.
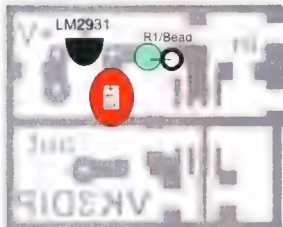
Figure 10: Component overlay for the top of the AD8307 board.

some solder wick will fix it without too many problems. The other components are relatively straightforward to mount including the through-hole components. See the component overlays for the bottom in Figure 9 and the top in Figure 10.

With the through-hole components that are earthed ensure they are soldered to both the top and bottom layers of the board. As well as this you will note in the completed board as shown in Photo 5 (facing page) that I have soldered some scraps of PC board along the sides of the board to ensure the top and bottom earth areas are connected solidly. These scraps of board also protrude about a centimetre out from the board on the input end. I use these projections to simply solder mount this module to the back of the front panel of the box.

Pre-scaler Module
The pre-scaler board, like the AD8307 board, is made with double sided board with one side left solid copper for an earth plane. The board pattern for the bottom of the
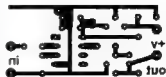
Figure 11: Pre-scaler board.

Photo 4: Top and bottom of AD8307 board.

Photo 5: Analog board and the front side
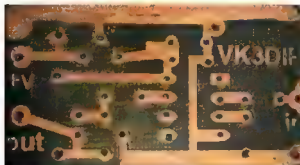
Photo 6: Pre-scaler board top and bottom.

Figure 12: Pre-scaler board component overlay.

board is shown in Figure 11.

Again those holes which do not connect to earth have the copper around the hole on the earth plane side of their holes removed to prevent shorts. See Photo 6.

Photo 7: Pre-scaler board, top view

The components are mounted as per the component overlay in Figure 12.

Those pins which are earthed are soldered on both sides of the board and again two small scraps of PCB are used on the edges of the board. Photo 7 shows this on the completed board, again the strips extend out the input side to facilitate mounting to the back of the box front panel.

Figure 13: Analogue board full size pattern.

Figure 14: Analogue board component overlay.

Analogue Module

The analogue board is a single sided board made either using a bit of vero-board, proto-board, or the PCB shown in Figure 13.

If the PCB is used the component overlay is shown in Figure 14.

Note that a number of resistors were used in series to make up particular values. As I did not specifically cater for many of these on the board some of them have to be paired with the two ends twisted and soldered in mid-air. This is the area where the most customising will probably take place. If you wanted say a higher or lower voltage range it is pretty straightforward to calculate new resistor values and the circuits are very tolerant.

Note though that I did have to put an additional bit of filtering on the output of the PWM filter

Figure 15: Generic MAX232 board full size pattern.

but in my case I mounted it on the back of the output socket. If you are using a proto or vero-board you may choose to put these additional components on the board.

Figure 16: Generic MAX232 component overlay.

RS232/USB Module

If you choose to build the true RS232 interface using a MAX232 you can use the board shown in Figure 15, with the components as per the overlay in Figure 16.

If you choose to use a USB-RS232 device then basically, in this case, the idea seems to be the cheaper the better. The version I used is shown in Photo 8. The blue silicon rubber outer is removed by carefully slicing down each side with a sharp blade and then peeling the two halves apart as

Photo 8. Opened and unopened USB RS232 device

Photo 9. Close up of USB/RS232 device internals

Photo 10: Inside wiring.

shown. Photo 9 shows a close up of the device I used in the prototype.

In this case you can see the main board with the USB/RS232 IC mounted under a black blob and its associated crystal. The various RS232 control lines are clearly marked on the main PCB however only the TX and RX ones (and ground) are connected to the other small board with the two transistors and the DB9 connector. For the purpose here the daughter board is separated by unsoldering the three connections and the main board alone is used. Here I only used the TX and RX but the other control lines are available as additional IO if required; note there are other control lines on the other side of the board.

So far I have opened three different types of the cheaper converter and all have been usable. One way of telling what is inside the converters before opening them, assuming you cannot see through the translucent plastic, is to check on the drivers that get loaded on the PC. This should give you the chipset used, which can then be looked up on the web for the data to see if they have the inverted output or not. As mentioned earlier the version I used had the very common PL2303 chip in it, the data for which is available at the Prolific web site, refer Reference 7.

Putting it together

The individual boards are wired up as per the overall connection diagram as shown in Figure 17. (Facing page.)

For the prototype I installed the various boards into a small plastic case. The Jaycar part number is HB5970, but Dick Smith has an equivalent box (H2512); both have dimensions of 140 x 110 x 35 mm, as can be seen from Photo 10. I placed a piece of unetched PCB behind the plastic front panel. It is held in place by the various sockets and switch being mounted through it. This board serves as a convenient earth rail for all the connectors and enables the small RF critical boards for the RF level and frequency to be soldered directly on over the relevant connector rather than using flying leads as used for the DC and low frequency stuff.

The other output leads for I2C, DDS, and 5 volt rails are connected to a small screw terminal strip, and banana sockets mounted on the lid.

Testing out

Each module can be visually inspected for shorts as it is built. Similarly the boards with regulators can be checked by powering them up and checking the relevant voltages. In the case of the main PIC board this is best done with the PIC not in its socket, as this both prevents damage to the PIC, and provides some convenient test points.

Once everything is assembled and wired up, but before inserting the PIC, you can check all the voltages levels through the analogue card, and the setting of the 2.56 V (or whatever else you have decided to use) reference voltage using the trimmer. The reference voltage will be on pin 2, and with no PIC in the socket the supply 5 volts will be on pins 4, 7, 10 and 14. For the analogue board just check that, with whatever you

chose as the full scale voltage in, you get whatever you set with the reference voltage appearing on the appropriate PIC socket pins (pins 18 and 1). As a simple test with the levels I used in the prototype of 10 volts and 2.56 volts reference, connecting analogue inputs 1 and 2 to the 5 volts rail should give you half of 2.56 volts out or about 1.28 volts on pin 18 and 1 respectively of the PIC socket. You can also simply check the PWM filter out by carefully placing 5 volts DC on the analog input of the PIC socket which should produce DC 2 volts out. A CRO if you have one is useful here to check there are no oscillations or ringing present as you connect and disconnect the 5 volts.

You can also do a basic test of the AD8307 levels by connecting up a suitable low level signal generator and seeing the output voltage appearing on pin 17 of the PIC socket. This voltage should vary from some small fraction of a volt with no signal present to about 2.5 volts with + 10 to 13 dBm (10 – 20 mW) input.

On the prescaler board the voltages also need to be checked especially that of the operating point of the BF199 or whatever transistor you have used. As mentioned in the circuit description section the DC output voltage with no signal in, which will be appearing on pin 12 of the PIC socket should be close to half supply or 2.5 volts.

Once all the voltage checks are OK you can insert the PIC and connect up to your PC. If you are using the USB option do not forget that some chips need you to have powered up the PIC and before you insert (and thus power up) the USB connector into the PC. You should of course have loaded the appropriate PC drivers that came with the USB/ RS232 device.

With all this done you can either use the generic application I have provided in Reference 4 or just use some generic serial terminal such as Hyperterm on a Windows machine. The important settings to get correct are the correct comport, baud rate, and 8 data bits no parity and 1 stop bit. While the flow control I have used is actually a simple version of XON/XOFF, it is when testing purposes to leave this as off or no flow control for the PC settings. In things like Hyperterm, you may also need to set it to send a line end with line feed, and echo typed characters locally, that is, to be half duplex. In Hyperterm's case these settings are in the properties settings ASCII setting area. As far as the baud rate is concerned, I have been testing the interface out with increasingly higher speeds so it is best to check the readme file in the distribution from Reference 4 for the speed for that particular version.

If you are connected at the correct speed and settings and have either a terminal window open in something like Hyperterm or at the command line in my application, then the simplest first command to type to test things out is the ? character (do not forget the enter). If all is OK you should get back something like 'VK3DIP simple serial IO V3.3'

from the interface. Do not worry if you are using a terminal package and there seems to be a funny character at the start and end of this string as this is just the XON/XOFF flow control I mentioned earlier. Continued pressing of the enter key by itself after this should just repeat the previous command and keep giving you back the same message.

If all of this works you are ready to go; have a play with my interface application - it should hopefully be pretty self explanatory and straight forward.

In part 2 of this article I will go into more detail on how to use the interface and the sort of things you can do with it.

References

Reference 1.   There are many places to buy 16F88s from but I got mine from Clints Components at http://stores.ebay.com.au/Clints-Components

Reference 2.   There are also many places to get cheap USB to Serial cables. I got the ones I ended up using here from Keyhere at http://stores.shop.ebay.com.au/keyhere

But as mentioned in the text, in their original condition they only had the TX and RX lines implemented and still were not true RS232 levels.

Reference 3.   PIC Simulator IDE: http://www.oshonsoft.com/

Reference 4.   The full source for all of the PIC and PC software used in this interface can be found on the VK3DIP/Yagicad Homepage at www.yagicad.com In this case it is at least on the miscellaneous projects file page.

The PIC code is for the Basic compiler built into PIC Simulator IDE – from Reference 3. And The PC code is in Visual Basic.net and is compiled with the free Microsoft 2008 Express version of VB. Reference 5.

Reference 5.   Thank you, thank you, Microsoft for this wonderful free powerful tool for experimenters. Available at http://www.microsoft.com/express/vb/Default.aspx

Reference 6.   A simple sensitive power meter – Paul McMahon VK3DIP, *Amateur Radio* magazine, June 2009, Pages 13–21.

Reference 7.   A Prolific PL2303 datasheet and other info is available from http://www.prolific.com.tw in the support/downloads area.   **ar**
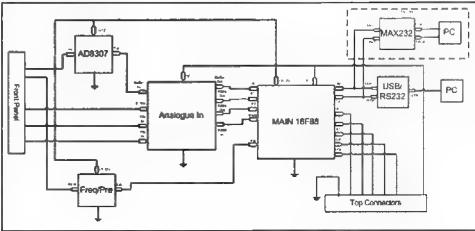

Figure 17: Overall interconnections.

Once upon a JOTA....

Ben Ramsden VK2GHZ

Sydney North Region Scouts and Guides had a ball at their annual VK2SNR JOTA/JOTI camp The Manly Warringah Radio Society (MWRS) were there to run the radio side of things.

'Why *do* you like Guides so much, don't you make biscuits?' an incredulous VK3 Scout asked some of the Guides when talking to them on 80 metres.

The girls were having none of it and gave as good as they got. 'It's fantastic. And I've got a really, *really* irritating brother at home', one of them replied. Welcome to a world of hobby radio, not for senior gentlemen involved in worthy conversation, but the young generation passionately doing it their way.

Our campsite for the weekend was located on the shore of Lake Narrabeen, 20 km NE of central Sydney, within the grounds of the Sydney Sports Academy. The 151 campers cycled through several activities over the weekend including boating, electronics, computing and radio.

The MWRS had a variety of modes operational for the event; HF on 80 and 40 metres, VHF into our local repeater and a specially installed EchoLink RF node and PC EchoLink.

We were also fortunate to have Kylie on hand who ran a fun two-way handheld radio exercise to give participants confidence using radios, and keep them occupied whilst they waited their turn for longer distance QSOs.

Club members worked hard to stage a great event. Patrick VK2PN constructed an OCF HF dipole which was erected between the tallest gum trees in the vicinity using Bruce VK2ZZM's 'patent antenna launcher'.

Greg VK2VGM and Mal VK2TMF installed a temporary simplex EchoLink repeater nearby. A 2.4 GHz WLAN radio link was established using Dom's VK2JNA patch antennas to provide internet access for a PC-EchoLink station. Yves VK2AUJ, Connie VK2CON and Tim VK2BT flew a helicopter from Bankstown airport over the site, where those on the ground were able to track via the onboard APRS, and speak to on VHF. At least fourteen club members contributed in some way.

Mal VK2TMF brought along his Toyota Hilux ute that he has converted to fully electric. Several campers were very interested in this, including one who asked Mal please can you tell me about the history of radio. Many hours later the Scout was heard giving an in-depth briefing about the working of the car to an examiner for his electronics proficiency badge!

Some radio die-hards had expressed concerns to me about using EchoLink for the event because 'it's not real radio' but the organisers were keen that we had it to increase the volume and range of QSOs.

In the event it was invaluable, especially when HF propagation deteriorated. One Scout was a fluent Swedish speaker and so we had him calling CQ via a Stockholm repeater. Others had a conversation with a Scout in Hawaii (where it was 'yesterday' afternoon) rushing to finish his homework before his own local JOTA camp.

At one stage the kids were getting too used to speaking to people all around the world. I overheard some of our Guides on-air asking about the local weather and time zone, only to discover that they were talking to someone a few km away.

We were all reminded that radio was at the core of things when our TS-430 'popped its clogs' mid-session and Bruce and Yves took the top off and demonstrated rapid fault finding and fixing to all.

A true 'radio experience' contains both the thrill of speaking to someone on the other side on the continent, and the monotony of calling CQ endlessly with no replies. Too much of the latter however is not compatible with a positive participant experience so I felt myself drawn to those modes with the greatest probability of success, which was often EchoLink.

Considering how many JOTA stations were operational in our time zone that weekend, it was remarkably difficult to contact them when you wanted to. I would be interested to hear whether others had similar experiences.

We were operational in sessions from Friday night to Sunday lunchtime, with breaks overnight and for meals. During this time we logged 45 QSOs in ten countries, including Australia. We worked all the mainland states, but somehow managed to miss VK7. Our station count was six local, twenty five interstate and fourteen international.

Thank you to everyone who talked to us, to the MWRS members who ran the event, and especially Glenn Satchell the local Scout activity leader, without whom it wouldn't have happened

At least two of our club members can trace their interest in amateur

Photo 1: Greg VK2VGM and the girls calling on VHF.

radio back to an experience at a Scout radio camp. Only time will tell how many future radio amateurs we encouraged this weekend, but I suspect that at least one Scout will be building himself an electric ute in a few years!

ar

2010 JOTA is on 16-17 October
Are you prepared?

15 - 17 OCTOBER / OCTOBRE, 2010

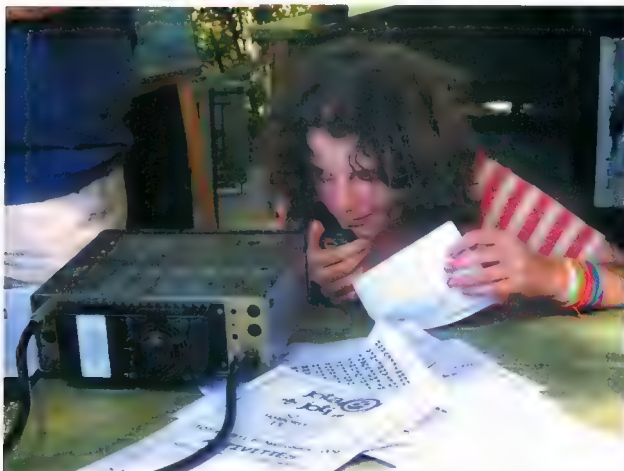Photo 2: Mal VK2TMF, Russ VK2BYN and Dom VK2JNA setting up the VK2SNR HF station.

Photo 3. A Guide at VK2SNR trying to pick out the speech from the noise on HF.

Promoting Amateur Radio

Deniliquin Ute Muster

Friday 1st and Saturday 2nd October 2010

Robert Pope VK5TS

My interest in radio communications started in 1976 when I finished school and started learning to be a professional shearer to complement the family farming business.

While travelling remote and outback regions alone, I was concerned about my personal safety. This led me to CB radio (27 MHz SSB) and worked really well for many years driving around South Australia, New South Wales and Queensland following the shearing industry. I used the CB radio on the family farm and still do between the family properties.

In the mid to late 70s I met an amateur operator and was fascinated with his well-equipped amateur radio shack but the Morse code segment of the licence frightened me off. With the introduction of UHF CB into Australia, my interest in communications continued to grow. Through UHF and my interest

in the transport industry, I met Gary VK3FREQ who at the time advised me of the new Foundation level amateur licence with no Morse code requirement. With this news I could not wait to complete the study and become an operator myself.

My interest in communications led me to a position in the Country Fire Service and I became a Brigade and Group Communications Officer with VHF, later progressing to Government Radio Network (GRN) and VHF equipment. Approximately two years ago, HF was looked at for areas outside GRN range for remote region communications. Given my experiences over the years, I was recommended to join the State Volunteer Telecommunications Advisory Committee for Country Fire Service as a Regional Representative and have been on this board for some time.

My VS Holden Ute is set up with the following equipment:

- 27 MHz CB President Grant SSB into a 1220 mm white lightning antenna
- UHF Electrophone TX4400 into a Polar ground independent antenna
- Motorola MCS 2000 into an antenna on the right hand mudguard (CFS)
- Codan HF NGT AR into a 9350 Codan auto tune antenna (CFS) with a Codan GPS engine attached
- Icom IC-207 into a Comet SBB5 dual band antenna 2 m/70 cm
- Yaesu FT-857D into a Comet SBB5 dual band antenna 2 m/70 cm and HF modified commercial antenna for 80/40 m with an FC 30 tuner or Terlin Outbacker
- Terlin Outbacker antenna replaces the commercial antenna for extended band coverage
- Realistic Pro-37 Scanner into an RFI elevated feed UHF antenna
- Garmin nuvi 760 GPS into an external antenna in the cabin
- Phone operates through a Laser 508 antenna (CFS)

In October 2009, I attended the Deniliquin Ute Muster and was amazed at the number of people at the venue (20,000 plus) observing vehicles with radio communication. I enjoyed that weekend immensely and will be attending this year but thought it would be a great idea to give something back to amateur radio and promote our hobby at this venue.

I am entering my vehicle in the Show 'n' Shine section and hope to meet many radio enthusiasts and encourage others to join the amateur radio hobby. If any readers are planning to attend the Deniliquin Ute Muster please come forward for a chat or help me promote our hobby.

Cheers. Rob VK5TS

Robert VK5TS and his VS Ute mobile antenna farm.

Welsh end of the First UK-Australia Press Message re-enactment

Jim Linton VK3PC

The Dragon Amateur Radio Club in North Wales over 16-18 July 2010 operated a special station GB2VK from the former Marconi Long Wave Transmitting Station at Waunfawr in the hills above Caernarfon.

The club has operated previously from that site, notably on International Marconi Day held annually to celebrate the birthday of Guglielmo Marconi (25 April 1874).

DARC Secretary, Stewart Rolfe GW0ETF said, "So when Gippsland Gate Radio and Electronics Club Secretary, Steve Harding VK3EGD proposed to DARC that it might like to be part of the Centenary of Organised Amateur Radio in Australia, the club instantly agreed.

"The GGREC proposal was to re-create the passing of the very first wireless press message which was transmitted from Waunfawr in 1921 to a receiving site set up at Koo-Wee-Rup near Melbourne.

"The aim was firstly to contact each other on as many bands and modes as possible and then hopefully GB2VK operators send the text of the original message to GGREC station at Koo-Wee-Rup. Given band propagation conditions it was going to be struggle, might not be achievable, but at least all involved would have a lot of fun trying."

The Dragon Amateur Radio Club made use of its caravan in quasi-field style operation. Stewart GW0ETF explained that the old Marconi buildings are now used principally as the Beacon Climbing Centre (the vast former transmitter hall is now the highest indoor climbing wall in the country).

Getting access inside for a 24 hour a day operation would have been awkward as well as producing problems for siting and feeding the doublet and vertical antennas.

Sleeping in the caravan proved invaluable, he said, with the overnight and early morning long path operations to Australia.

The Dragon ARC Secretary said, "I kicked off things at about 0330 UTC on the Wednesday with my Elecraft K3 and Acom 1000 amplifier.

"Conditions were not promising and I stuck to CW. Fortunately we could pick up the WiFi from the climbing centre so were able to 'sked' with VK100WIA in real time using Skype and to our surprise and delight made contact four times between 0538 and 0714 on 40 m and 30 m.

"None of these were deemed quite good enough to attempt passing the original message. No contact was made on Thursday but a marginal improvement on Friday produced a CW contact on 20m at 0635; the 339 reports exchanged meant again no attempt was made at passing the message.

"In terms of the original aims this was only a partial, though nonetheless satisfying success. I was surprised at how enjoyable the whole event turned out to be, aided no doubt by the gloriously hot sunny weather.

"We made many contacts worldwide and the GB-to-VK concept seemed to have produced much interest around the globe."

The Dragon ARC has thanked GGREC Secretary Steve VK3EGD and President Chris Chapman VK3QB for their hard work and encouragement.

"It was a great effort by many DARC and GGREC members, in the planning and particularly during those three days of setting up, dismantling, and operating GB2VK and VK100WIA.

"And best wishes from the Dragon Amateur Radio Club to the Wireless Institute of Australia on its centenary, and our club members are very pleased to have been officially part of the year-long celebration," said Stewart GW0ETF.

Photos by Stewart Rolfe GW0ETF.

ar

Looking WSW (Long Path to VK3) from above the station; Caernarfon is in the distance alongside the Menai Straits with Anglesey beyond. You can make out the mast supporting the inverted vee doublet to the left of the Marconi buildings and the white roof of the caravan just behind and below.

Looking more or less north west showing the vertical and the caravan. The doublet is running parallel with the fence. The vertical is positioned off the end of the doublet and the 'wire' you can see crossing it is the nylon supporting cord.

VK2news

Tim Mills VK2ZTM
vk2notes@arnsw.org.au

Welcome to spring. *Amateur Radio New South Wales* is planning a Mini Field Day for the Trash and Treasure Sunday on 28th November. The day may include a forum for club representatives and members. Details in the October and November *AR*. This month the T&T will be on the Sunday the 26th. For major items on offer, check out "Disposals" on www.arnsw.org.au

All levels of licence assessment exams are available on these Sunday mornings. Please advise anyone looking for an exam venue. Register interest in ARNSW phone 02 9651 1490. A one day Foundation course is being planned, please register interest. All these activities are at the VK2WI site, 63 Quarry Road, Dural.

Thanks from Ian VK2ZIO for the *Kurrajong Radio Museum* for the donation of some Australian callbooks from the 1950s to 1970s, following the request last month.. There are still gaps, so if you have issues that you no longer require, Ian would be pleased to receive them. Phone 02 4573 0601; email vk2zio@yahoo.com.au or postal

842 Bells Line of Road, Kurrajong Hills 2758. Or call at the Museum.

Bill VK2ZZF advise the *Snowy Mountains ARC* are now meeting at new club rooms provided by Fred VK2FJS. The club has the call VK2SNO and repeaters on 6 metres – 53.575 and 2 metres – 147.025. The Saturday evening net is now on the 2 metre repeater at 2030, the 80 metre net has been discontinued. *Hornsby and District ARS* meet twice a month – on the second and fourth Tuesday evenings at Mt. Colah and nets each week – Monday evenings on their repeaters, Wednesday evening on 80 metres and Friday evening on 40 metres. Details www.hadarc.org.au

The *Mid North Coast ARC* meet monthly on a Sunday at different locations. They have a new committee and have been making changes to their repeater locations. Planning is well under way for the 2011 Expo at the end of January advises Jason VK2LAW. Check out www.mncarg.com They are planning various courses. Postal address P. O. Box 463 Toorima

2452. The *MidSouth Coast ARC* held their AGM last month. Their next quarterly meeting will be the second Saturday in November.

Summerland ARC held SARCFEST last month. This month is a 40 metre Portable Antenna Shootout on the 19th at the club rooms The antennas have to be constructed on site between 1030 and 1100 hours. To test the results transmitter input power is to be up to 10 watts, frequency 7075. The performance will be assessed by a remote receiving station. More details - Chris VK2ACD or Duncan VK2DLR.

The club will conduct a Foundation course on the weekend 25 and 26 September. Details from Duncan 02 6628 1337 or at education@sarc.org.au

Waverley ARS also have courses planned this month - details from education@vk2bv.org

Blue Mountains ARC conducted their annual Winterfest last month at the Nepean Rescue Operations Hall at 18 Simeon Road, Orchard Hills. This is their regular meeting place on the first Friday. They have an 80 metre net on Tuesday night at 2000 – 3.543 MHz.

Last month saw AGMs for both the *Orange and District ARC* and the *Oxley Region ARC*. Orange was formed in 1960 and Oxley in 1971. Orange club members have met weekly with students of the Glenroi Public School., teaching simple theory, construction and morse code. This year's *Orange* committee has Robert VK2ZRJ, President; Bob VK2ABP, Vice President. Ross VK2ER is Secretary and Treasurer is John VK2TUV. Committee members -Bruce VK2DEQ, Lez VK2SON and Lindsay VK2AMV.

Oxley Region ARC held their AGM early August. The committee for the next year has Henry VK2ZHE continuing as President. Bruce VK2HOT is Vice President. John VK2KC is Secretary and John VK2KHB is Treasurer. Committee members are Bill VK2ZCW, Arthur VK2ATM and Bill VK2ZCV. The club has a monthly meeting on the first Saturday afternoon and an informal night on the fourth Friday. Meetings at the Port Macquarie SES in Central Road. Nets on local 6700 Sunday at 0830 and Wednesday at 2000. The *Great Lakes ARC* had their AGM early August with Bruce VK2EM in the role of President.

Eighty Years on Air.

William (Bill) Hall VK2XT has been both licensed and a member of the WIA since 1930. His first call was X2BH but this was required by the commercial broadcast station being established in Broken Hill. He was given a choice of other calls and he chose VK2XT.

He has lived in various Newcastle Hunter Region locations. He was first a member of the Newcastle Radio Club which became the Hunter Branch of the NSW Division, which these days has become the Hunter Radio Group. Bill operated the VK2 QSL Bureau for the NSW Division for many years until it became a function of Westlakes.

He was very keen on 15 metres, working most regions of Japan and perhaps most of their amateurs. He has collected extensively and at last count there were over 150 mantle radios, for example. He still drives and until a couple of years ago was mowing his lawns.

He attended the opening earlier this year of ARNSW's Centenary Building at VK2WI Dural and was one of the three old timers cutting the cake. In a couple of years Bill will be celerating his Centenary.
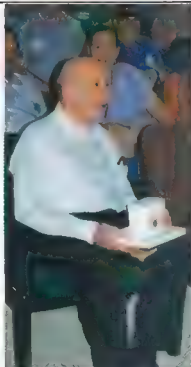
From Tim VK2ZTM and Brian VK2WBK.

Clubs are always having problems sourcing a lecturer for the monthly meeting. I have been helping out with some of the early history of the hobby in VK2. This month I will be at Hornsby, Waverley and Hunter. Early October will be at Blue Mountains. I can be contacted via email at the ARNSW news site news@arnsw.org.au or vk2notes@arnsw.org.au

WICEN NSW have the Trek for Timor exercise on the weekend 18 and 19 September. Next month there is the annual SAREX search for a missing aircraft on the weekend 16 and 17 October, followed by the Hawkesbury Canoe Classic overnight from Saturday 23 to Sunday 24. There is a First Aid Course being conducted by the Bushwalkers Wilderness Rescue Squad in October, They, like WICEN, are VRA squads. Check out www.bwrs.org.au if you need the first aid qualifications.

Mark VK2XOF, the VK2WI Engineering Officer, has advised

an upgrade to the VK2RWI 7000 repeater with new equipment and a power increase. Work is proceeding to replace the 23 cm repeater, in service since the late 1980s

ARNSW is a bit short on photos of their former properties – Amateur Radio House 1959 to 1982 at St. Leonards Then Amateur Radio House at Harris Park 1982 to 2006. If you have any which show the buildings and interiors they would welcome copies. P. O. Box 6044 Dural Delivery Centre, 2158.

They have a change of venue for their first Tuesday evening in September and October. They will be back at the previous venue at the North Parramatta McDonalds. Details will be in the weekly VK2WI news sessions. They have a net on the third Tuesday at 1930 on Sydney 7000 and then on 3686.4 kHz at 2000 hours. They also meet on the Sunday afternoon of the T&T Sundays at the VK2WI Dural site

73 – Tim VK2ZTM.   ar

Summerland Amateur Radio Club

This September marks the 30th year of continuous running of the early morning 80 metre net of the Summerland Amateur Radio Club. Remarkably, this net has been run for 29 of those years by Leith Martin VK2EA.

The following history of the "Dawn Patrol" net was written in 1987, by Bernie Foster VK4FOS, now silent key:

'In July 1980, a few members of the Summerland Amateur Radio Club decided to take a tour into the Outback, and it was arranged for Bernie, then VK2VTP and Duncan VK2DLR to hold a sked at 10 am EST on 21.190 MHz, so that the travellers could keep in touch with events back home. Contacts were made right through this tour to Adelaide River, Northern Territory, Tennant Creek, Alice Springs etc.

A few weeks later when another trip was organized for Port Augusta, Walkerie and the Mildura districts, the same sked was kept by Duncan, and Bernie who was then living at McLeods Shoot.

When all the travellers returned, as the contacts had been so enjoyable it was decided to continue the net, but as a 10 am sked was impossible to keep for those working, it was decided to cater for the workers with an early morning net at 0630 EST on the frequency of 3.600 MHz, this net being started on 22nd September 1980. Within a few weeks it was realized that this frequency was clashing with a harmonic of the local broadcast station and the frequency was changed to 3.605 MHz. One feature of this net has been the daily weather reports as to local conditions given by each station.

Early participants in the net were Duncan VK2DLR, Graeme VK2GJ, Bob VK2AFP (now a silent key), Bluey VK2AEU (also silent key), John VK2NSA (now VK2JWA), John VK2ATI, Leith VK2EA, Bill VK2BCW (later VK2WJC, now a silent key) and Bernie VK2VTP (later VK4FOS, now also a silent key) as net controller.

As quite a few of the nucleus had been connected with the Air Force or Flying and in the winter the net started in the half light of dawn, Bernie started to call the net "The Dawn Patrol".

On 19th October 1981 Bernie moved to Queensland and handed the running of the "Dawn Patrol" to Leith VK2EA who then commenced using the Club's call sign

30th anniversary of the "Dawn Patrol"
Chris Meagher VK2ACD

of VK2AGH . The Dawn Patrol has been run by Leith most efficiently and consistently every week day since

Footnote:
The dawn patrol now runs under the club's current callsign VK2SRC, at 0630 local time. Please feel free to call in, especially on the week of the 30th anniversary, September 20 to 24. A special QSL card will be issued for the occasion. ar

Duncan VK2DLR Subaru at Fannie Bay, Darwin, with 2 metre and 15 metre antennas. The HF rig was a TS-120V with 100 watt linear ocky-strapped to the passenger's seat.

Extract from the log book of VK2DLR, showing contacts on 21 MHz from VK8 back to Summerland (NSW North Coast)

AHARS

Christine Taylor VK5CTY

At the July meeting a very interesting talk was given by Phil Storr of the Historical Radio Society. He talked about the various types of old radios that he had come across, showing how some of them could be refurbished so they worked just as well as they had done many years ago. He also pointed out why some old radios cannot be rebuilt.

In the rebuilding of old radios there are two schools of thought. One says any old components should only be replaced with new but similar components – which becomes difficult when faced with leaking electrolytic capacitor or wirewound resistors of types no longer available etc. The other school is quite happy to replace old components with modern ones of different types but suitable for the same purpose.

Phil talked about cabinets as well as circuits and had a number of of his rebuilt radios to show us.

Although he was talking about broadcast radios mainly he
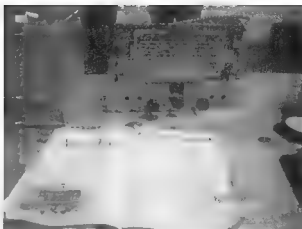
did say there are some members of the Historical Radio Society who are interested in and have re-built amateur radios, too.

The photo show one of the re-built radios a Vibra-five, and the reference for it in a copy Radio and Hobbies of 19th September.　**ar**

Technical Symposium

AHARS will hold a Symposium on Sunday 19 September at the Belair Community Centre. Speakers: Drew Diamond VK3XU; Phil Harman VK6APH; Rob Gurr VK5RG; Keith Gooley VK5OQ; Iain Crawford VK5ZD; Graham Dicker VK5ZFZ. Lunch and morning and afternoon tea provided.

TOPICS: Microwave antennas, front panel finishing, early SSB techniques, innovative home brew techniques. Display of a working hpsdr station by Hans Smit VK5YX.

More details will be heard on the Sunday morning broadcast and through the regular Monday night net on the Adelaide repeater 146.000 at 8.00 CST.

This should be an interesting and informative day for us all with some well-known speakers.

Locals, please come and any visitor, please time your visit for 19th September.　**ar**

Adelaide Hills Amateur Radio Society, Inc

VK5 2010 TECHNICAL SYMPOSIUM

Sunday September 19

9:30 am to 5 pm.

Current developments and experiments in Amateur Radio.

Key Speakers	Subject:
Drew Diamond, VK3XU.	• Innovative Home Brew ideas
	• LF Development Work
Phil Harman, VK6APH.	• HPSDR
Keith Gooley, VK5OQ and	• Microwave antenna construction
Iain Crawford, VK5ZD.	techniques
Rob Gurr, VK5RG.	• Early SSB Techniques.
Demonstrations:	
Hans Smit, VK5YX.	• A working HPSDR setup.
Graham Dicker, VK5ZFZ.	• Front panel finishing

Drew Diamond

Phil Harman

VENUE: Belair Community Hall.
Burnell Drive/Sheoak Road, Belair. (Just north of the BP Servo).
Travel south from the City along Unley/Belair Road to Belair.
Luncheon is provided, plus tea, coffee, etc.
Drew Diamond's books for sale.

ENTRY : $20, payable at the door.　Students: Free entry with Student ID Card. Lunch $5.

ENQUIRIES: AHARS Secretary, (VK5KC), David Clegg, davidclegg@internode.on.net　ph. 08 7127 0738
AHARS President, (VK5EMI), John Elliott, dellio2@bigpond.net.au　ph 08 8278 1269

Amateur Radio Victoria News

VK3news

Jim Linton VK3PC www.amateurradio.com.au arv@amateurradio.com.au

People from different backgrounds continue to show interest in becoming an amateur. At each Foundation licence training session we ask attendees to say what attracts them to the hobby. Some are individuals who unsuccessfully attempted the Novice licence and missed due to the training methods or a lack of study technique.

Prior to the introduction of the new assessment system in 2005, it took about six months to study the NAOCP Theory, Regulations and Morse code, depending on the skill of the instructor plus applicant's motivation, or available time.

Failing a test would be disheartening, but missing a second or third time saw many lose interest and give up.

Under the old system a candidate could not learn why they had been unsuccessful. Under the new assessment method, it is clear that those who failed at the Novice licence tests have not only found success at the Foundation licence level, but many

have upgraded to the Standard or Advanced licences

Still joining the ranks are family members of radio amateurs, plus current or lapsed CB operators. Another source of recruits is Information Technology sector people who see the benefits of hands-on communications and are eager to learn new radio (wireless) skills, that may be transferable to their careers.

The yachting and four-wheel drive fraternities are also showing interest, as are people who know nothing about radio or electronics but are attracted to amateur radio for what it has to offer

Volunteer emergency service personnel are a recent group showing interest in the basic training, knowledge and skills achievement gained with an amateur radio licence.

Better promotion of amateur radio will generate more interest and grow amateur radio. We can all have a role to play in creating more radio amateurs.

The six month-long special callsign VK100WIA as part of the Centenary of Organised Amateur Radio celebration concludes at the end of next month It has certainly generated a lot of interest and helped participating clubs demonstrate amateur radio to the public or publicise it in local media

Part of this has been more people being exposed to and showing an interest in amateur radio around Australia. Elsewhere in this month's *AR* magazine are details of an event that aims to show the Amateur Radio Service to the public, and generating even more interest and understanding about what we do and why we do it.

Foundation class
Our Education Team, led by Barry Robinson VK3PV, will run the next weekend training and assessment session for the Foundation licence on 11-12 September. For inquiries contact Barry on 0428 516 001 or arv@amateurradio.com.au *ar*

Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

GARC – The next generation
Within the club are four family groups in which their children have either earned Foundation licences or are in that process. This 'organic' growth sits well alongside the recently recruited adult members who are also being trained to elevate their licences to Standard and Advanced calls by the two Peters VK3KP and VK3ZAV.

Beacons and Repeaters
The GARC currently supports:
Repeater VK3RGL on 147.000 MHz with 91.5Hz CTSS
Repeater VK3RGC on 147.125 MHz with no CTSS
Repeater VK3ROW on 147.275 MHz with 91.5 CTSS
Repeater VK3RNP on 438.1750 MHz D-Star
Repeater VK3 RGL on 439.575 MHz no CTSS
IRLP – VK3ATL node no. 6572 can be accessed via VK3RGC
Beacons RGL on 144.530 MHz and 432.530 MHz both located in QF22DC beaming alternately west and northeast.

September General Meeting
With President Dallas VK3DJ, in the USA, and Secretary Tony VK3JGC, in the UK, there will be no general meeting in September. Instead will be a social event and barbeque.

Recent Events
Gerhard VK3HQ spoke on the Icom IC-7000 and its elaborate and impressive software-driven menu. Very effective with the IC 7000's internal computer and video output coupled to the club's video projector.

One entertaining club event is the coffer swelling auction of members' unwanted radio gear. The MC is usually Chas VK3PY, who knows how to 'work an auction room'!

Anyone who has recently logged onto www.vk3atl.org will have noticed a complete revamp of the web site by Lou VK3ALB. Of particular interest are the project pages and links to other sites of interest to amateur radio.

The Queenscliff Maritime Museum has requested photos of the last radio event there and will allow us to erect an oregon mast next to the Marconi hut which serves as our /P QTH. The mast will be a flagpole, but primarily it is to facilitate the antenna erection process. The Museum has suggested a summer time event to attract tourists. *ar*

The GARC young guns. From left to right are Michael VK3FMIC (13 yo), Dana (11 yo), Rubin VK3FRJS (14yo), Aden (9 yo) and Jono (10 yo). Missing is Ingrid VK3FGRL (16 yo).

National Radio Event Comes Of Age

Richard Begbie

[It all began as a way of bringing vintage radio buffs together from across the country. Over a decade it has grown beyond recognition….]

The National Radio and Phono Fest has come a long way from its humble beginnings. In 2001 it looked like something of a gamble, so a modest suburban hall was hired, with equally modest publicity and planning. But as the event loomed and interest grew, a second hall had to be conscripted, and by the big day both halls were crammed to bursting with an extraordinary array of vintage radio and parts. People came from every corner of the country and overseas as well.

Now held every two years in the National Capital, the Fest attracts vintage and historic radio enthusiasts, communications and audio interests of all kinds, as well as a general collecting public which has grown rapidly in recent years. The weekend of September 18-19 this year should see another bumper event.

Although the fair began as the idea of one enthusiast, it has now evolved into a premier event for our national vintage radio organisation – the Historic Radio Society of Australia. HRSA president Mike Osborne (VK3ZCZ) is enthusiastic. "I'm delighted the RadioFest has become a central part of the HRSA calendar, and personally look forward to it immensely. Because it brings people together from all over Australia, we have once again decided to hold our AGM in conjunction with the Fest weekend."

In a brief decade the Canberra event has become the region's largest regular fixture for a wide range of vintage radio and sound-related interests. Although the large trading fair remains a centrepiece, the Fest now caters for people who want to learn, share information, and join the wider community of radio interest at all levels.

Canberra in spring also opens up possibilities beyond vintage radio. Alternatives abound for longsuffering wives and partners. The magnificent Floriade Festival is in its first bloom, and perennials like the War Memorial, the Museum, the Film and Sound Archive, and the Australian National Gallery are always filled with interest. Many couples and families make a weekend of it, and as well as exploring their own interests, "other halves" will often join in the convivial Fest dinner held the evening before the main events.

Although the big day revolves around the trading hall, the relaxed Saturday night dinner catches the spirit of the event. Apart from the pleasures of connecting with others, the evening features entertainment of various kinds, as well as a preview of the display. Speakers have taken us back to the adventures of early "steam radio", into the quirky world of the collector, and offered comical perspectives on many of the odd things we do. The night's program is put together as much for partners and wives as for the wireless-besotted.

Workshops have been an integral part of the event since its inception.

> **Piled on tables ...are boxes of valves, knobs, rheos, capacitors of every conceivable kind, period resistors, escutcheons, chokes, transformers**

Brief details on this year's event

WHEN

September 18-19,
with main fair Sunday 19, 9 am-3 pm.

WHERE
Kamberra Wine Centre,
Northbourne Ave., Canberra
(map on web-site)

COST:
Admission to Sunday fair
$5, $10 family. Workshops,
displays etc. included in
admission price.

For detailed enquiries go to:

HRSA's web-site at
www.hrsa.asn.au/
(click on RadioFest)

Richard Elliott on
lambdas@optusnet.com.au
or (02) 4846 1096

Richard Begbie on
rb@bordernet.com.au
or (02) 6238 2246

A crowded hall at the 2009 event.

These have ranged far and wide over the years, from home-made test equipment through every aspect of radio and phonograph repair and restoration. This year's workshops will explore the mysteries of the valve, the story of our forgotten radio pioneer John Graeme Balsillie, and feature the finer points of timber restoration with an antique expert.

The event also expands this year into a new and larger venue. For the first time it will include a display to put major parts of the history of sound and wireless into historic perspective. Already booked are fascinating items associated with the recording and broadcast careers of our two most famous singers during the high noon of radio – Dame Nellie Melba at the beginning, and Peter Dawson across the golden years.

As well, we look forward to a display of beautifully restored period military radio, and a fine collection tracing the early period of the telephone. Exhibits tracing the early days of broadcast will feature handsome equipment, as well as fascinating accessories designed to convince the lady of the home that wireless had a place in the parlour. Perennial interests like Bakelite, the programs of the war years and beyond, and the evolution of the transistor will also feature.

But there is little doubt that the weekend revolves around the Sunday trading hall.

Scores of tables are jammed with all things related to radio, from the 1920s right through the transistor era. Horn speakers and early cones, TRF sets, crystal sets and early phones rub shoulders with some of the best and rarest of the Bakelite era. Piled on tables and early console sets are boxes of valves, knobs, rheos, capacitors of every conceivable kind, period resistors, escutcheons, chokes, transformers – the list is unending.

There is usually a good scattering of communications and military equipment, and that's before we get to the ephemera. Magazines, crystal tins, adverts, books, technical manuals, and promotional items can always be found amongst more quirky and unexpected items. The interest in early phonographs and wind-up gramophones is steady, and there are always a selection of these on offer, along with Edison cylinder records, 78s, needles, tins and related paraphernalia.

Some are happy to share stalls. "Sharing gives me the chance to get around and have a look at things for myself," says return stallholder Barry Poor. Brian Lackie (VK2DLM), another long-time stallholder, is equally enthusiastic. "I haven't missed a RadioFest yet," he says, "and don't plan to miss this one. Although I do sell a fair bit, I sometimes wonder whether I go home with more than I brought!"

Which all catches nicely the positive spirit that has characterised the RadioFest since its inception **ar.**

Vintage variety is a feature of the Fest.

Workshop in progress

How radio went to war.

DXnews & views

John Bazley VK4OQ
E-Mail: john.bazley@bigpond.com

A New Country Next Month

New Country

An all time new one! 'Press release' issued 28th July 2010.

"The Sint Maarten 2010 team are proud to announce that they are in high gear with the planning for the celebration of the new country status on 10-10-2010.

They have a 12 member international team assembled, including: Franz DJ9ZB, Max I8NHJ, John K6MM, Dave K4SV, Kevin K6TD, Craig K9CT, Ralph K9ZO, Bill N2WB, Charlie NF4A, Charlie K6KK, Bruce W6OSP, and Joe W8GEX. This is a team of highly experienced, hard workers and some of the nicest people you could meet.

In addition to the operators, Tom Harrell N4XP is the team treasurer and Janet Pater W8CAA is helping in the organization. John K6MM has done an outstanding job as web master.

The website, can be viewed at www. stmaarten2010.com The website will feature oqsl (online QSL) and accept donations by PayPal.

The group plans to have four stations on the air 24/7, and will have two additional stations that can be activated if needed. They will work all bands, and on CW, SSB and RTTY.

Equipment sponsors are Icom, Alpha, Tennadyne, DX Engineering, Acer and M2.

Leaders Joe W8GEX and Craig K9CT were on Sint Maarten for a week and have secured two operating locations on opposite ends of the island. They were very happy with all of the cooperation received from local residents.

Our frequency plan for the operation."

BAND	SSB	CW	RTTY
10	28475	28014	28088
12	24955	24901	24925
15	21305	21014	21088
17	18155	18084	18098
20	14205	14014	14088
30	-	10110	10148
40	7078	7014	7048
80	3799	3514	-
160	-	1826.5	-

If you missed the recent operation from Togo by 5V7DX, you will have another opportunity with the forthcoming operation by 5V7TT taking place from October 10th to October 23rd. They plan to be active on 160-10 m CW, SSB and RTTY. The Mediterraneo DX Club Headquarters' operators I1HJT, I2YSB, IK1AOD, IK2CIO, IK2CKR, IK2DIA and IK2HKT will run the radios. Target frequencies are 28025, 24895, 21025, 18075, 14025, 10106, 7005, 3505 and 1822 on CW. On SSB, 28495, 24945, 21295, 18145, 14195, 7056/7180 and 3780. On RTTY look for 5V7TT on 28080, 24920, 21080, 18103, 14080, 10140 and 7040. Art IK7JWY (engarturodaprile@libero.it) will be a pilot station. QSL direct only, to I2YSB, Silvano Borsa, Viale Capettini 1, 27036 Mortara, Italy. They have a Web page at www.i2ysb.com

Susan W7KFI/KH6 said on the ON4KST Chat page that she is going to try and go to Johnston Island (KH3) in September for two weeks. Bernie of *'The Daily DX'* emailed her asking for more details. She replied *"I am trying to get boat ready for trip and hope to leave towards end of hurricane season" in October/ November. "I have permission from USAF to stop there."* For the record Susan is now 75 and has been trying to get to KH3 since 2007, but has

had several obstacles along the way including being hit by a car while riding a bike.

ANZA DX Net

Lindsay VK3WM, ANZA DX Net boss, suggested that readers of *'DX News and Views'* might be interested in their new website for the Net at http:// anzadx.net/

The ANZA DX Net is a team effort, fostering the spirit of amateur radio in an hour long net every day at 0515 UTC on 14.183 MHz. On Saturdays at 0445 UTC on 21.205 MHz, Alan VK3HGN runs the 15 metre net, checking propagation as the solar cycle evolves.

The original website is still maintained at http://anzadxnet.webs.com/

Recently Col VK4CC provided the perfect domain name and space on a fast internet server: http://anzadx.net/ which is enhanced with some nice graphics and regularly updated news and information about the Net. Prefixes of DX stations that have recently checked in to the Net are also displayed.

This year the ANZA DX Net celebrates 40 years of operation. Sage operators, including Morris ZL1ANF, Lindsay VK3WM and John VK4LJ serve to promote fine operating skills. Net control operators, a different one every day of the week, are selected to take advantage of productive paths. The website aims to complement the net by bringing together internet resources that enhance DX operations.

73 and good DX, Ken, KI6KFB, webmaster at anzadx.net Many thanks Lindsay and Ken.

Updating N0TG's planned operation from Sable Island, CY0. Gary Bartlett VE1RGB has been added to the team. He has operated from Sable Island previously. The callsigns for the operation will now be CY0/AA4VK, CY0/AI5P, CY0/N0TG, CY0/VE1RGB and CY0/WA4DAN. Their preference is to QSL to the "ONLINE QSL

Ed. note
October 10, 2010 is a special day for *Sint Maarten*, as they gain their independence from Dutch rule

A planned restructuring of the Netherlands Antilles (in the Caribbean) will see Sint Maarten become a separate country within the Kingdom of the Netherlands (as Aruba and the Netherlands Antilles are now). On that day, the Netherlands Antilles will cease to exist. The countries of Curaçao and St. Maarten will be formed in its place.

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REQUEST Service." Instructions are on www.CY0dxpedition.com

9Q50AR is a special event callsign to celebrate "the 50th anniversary of the independence of the *Democratic Republic of the Congo*," DX World reports. It will be aired from the club station in Kinshasa by different local operators until the end of 2010. Please be patient with them, as they "might not all be skilful enough to handle huge pile ups".

Tom DL2RUM will be going on a business trip to *Kigali, Rwanda* – 9X – and will remain there until late August - early September with a few interruptions (6-8 days each). Tom hopes to get his 9X0TL licence on 21 July, and to operate on 80-6 metres CW, SSB and RTTY during his spare time. QSL via home call. Further information and logsearch at http://dl2rum.de

6V7X, *Senegal*, will have Enrico IK2FIL at the controls for the last two weeks of September, including the CQWW DX RTTY Contest September 25- 26. He will be single op all band, 80-10 m. Outside the CQWW event, look out for him on 30 m RTTY. Get your QSL credit on LoTW, eQSL or bureau or direct from IK2FIL. http://6v7x.jimdo.com.

Also from Senegal, Gerard F5NVF/6W will be active from October 25th to November 1st, HF CW. QSL to his home call.

5Z4EE is relocating to *Nairobi* from Pretoria, South Africa, where he was ZS6SIG. In the US he is known as Sig NV7E (ex WA9INK, C31IL, DA1SI, F0ZR, FO0ZR, TU4CN, ZB2DA). He originally had the 5Z4EE call back in the 1980s. Sig will be in Kenya for four years this time around and plans to be active on 160-10. "Sorry, no 6 m yet in Kenya," he says. Sig adds, "I prefer CW, which [is] why I originally asked for the 5Z4EE call. I was also 9Q5EE in Kinshasa from 1989-91 and SU1EE in Cairo 1988-89" Sig will be geared up with Flex 5000 and 3000 transceivers and an Elecraft K3. He has a Superantennas YP-3 and will be putting up a hex-beam on 60 foot (18 m) mast and maybe later go to a Spiderbeam if he can fit it amongst the trees at his QTH. He says the backyard is small but faces a forest with a clear shot to both Europe and North America. He hopes the

monkeys do not "monkey with" his antennas. "They have already visited my backyard several times." QSL via NV7F or the DPO address listed on QRZ.com. He will respond to Kenya bureau QSL's but it will take a while.

Sig notes that another new Kenyan licensee is 5Z4ZD, operator Andy KI4THI, who now is his next door neighbour in Nairobi. QSL Andy to his QRZ.com info. He will operate from his own QTH and sometimes from Sig's. Andy's XYL, Liz, is KI4THL. Sig says they are both very enthusiastic about amateur radio.

Gab SU/HA3JB will be active again this fall in the September to November timeframe. He has renewed his licence with a mind to get on CW, RTTY, PSK31 and "some SSB." He plans to get into the RTTY Contest. QSL to his home call, direct only, with SAE: Gabor Kutasi, H-8601 Siofok, P.O. Box 243, HUNGARY. Write your email address on your QSL. www.ha3jb.com

Willi DJ7RJ goes to *FR, Reunion Island*, to operate from September 23rd to October 3rd. He moves on, then, to *Madagascar* with the 5R8RJ callsign, October 4th to October 29th, hoping to be on 160-10 CW and SSB and possibly 6 m as well QSL to his published address.

Fazlay S21RC is staying in *Haiti* and has got a licence for HH2/S21RC. He will work in the capital Port-au-Prince until the end of September Roberto YS1RS helped him to put up his antenna. He now has an inverted V for 40 m but wants to add another one for 20 m. Fazlay will be QRV mostly during the weekends and HH2/YS1RS should hit the airwaves soon as well. See also online at: http://www.s21rc.net/ and http://twitter.com/s21rc

Finally if you want to check the *ZS8M Marion Island* log, go to http://dx.qsl.net/logs/ and enter the callsign ZS8M.

Good luck in the pile-ups until next month.

Special thanks to the authors of The Daily DX (W3UR), 425 DX News (I1JQJ) and QRZ.DX for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from www.dailydx.com/trial.htm

Mike was born in London in 1934. For as long as he could remember, he had always had an interest in radio. His father never held an amateur licence, but Mike could remember a homemade copy of a Baird television system in their garage, although he never saw it working.

We married in 1963 and migrated to Australia in 1964. In 1974, (a mortgage and three children later!) he sat for and passed his AOLCP taking the callsign VK5ZBI. He was working for Weston Communications in Adelaide at the time and his first 2 metre rig was a converted Weston 551.

He made the mistake of telling me, jokingly, that the Weston was my Christmas present, so the decision was made that I should get a licence to go with it!

In 1977 Mike passed the CW exam and upgraded to become VK5AMW. Six months later I passed my AOLCP and was allowed to take over his VK5ZBI callsign. For a period, around this time, a group of amateurs met at our house every Thursday night to practice sending and receiving Morse, and at other times the "older set" would call in just for a chat and a "cuppa".

Mike was delighted when, a few years later, our elder son David sat for his licence and obtained the callsign VK5ZHB, later still up-grading to VK5KIM.

Although divorced for many years, Mike and I had remained friends.

Mike passed away on May 5 at Flinders Medical Centre in Adelaide after several months of declining health. Vale Mike, you will be missed.

Jennifer (Jenny) Wardrop VK5ANW

ALARA

Margaret Blight VK3FMAB

Keys, cards, museums and members

It can be both interesting and informative to visit events at other Radio Clubs when the occasion arises. There are of course the various Meets held during the year but other opportunities also come up, such as our visit to Koo Wee Rup to attend the re-enactment of the first press radio contact between the U.K. and Australia which was organized by the Gippsland Gate Radio & Electronics Club (see story page 29).

We found the GGREC club members to be friendly and welcoming. A number recognized the ALARA scarf that I wore and this led to an interest in our organization.

See clipping opposite.

Another historical link

During the visit to Koo Wee Rup, I was approached by a man who

introduced himself and mentioned his parents had been radio operators and his mother had been an early member of LARA. He himself had not carried on the hobby but was interested enough to attend the re-enactment and historical display. I offered to find out what information might be available about his mother.

As a result I later made contact with Norma VK2YL who was part of the original LARA membership. She certainly remembered Raedi and her OM Ray VK3BHL. Raedi was a keen member of LARA and even held the role of President for a time. So together we were able to pass on news of the early history of LARA and how it developed into the current organization.

Norma was even able to locate a photo of Raedi from those days much to the delight of her son.

Business cards can be informative

It was interesting to learn that members of the GGREC club would happily use club business cards to pass on information to interested people. I received more than one in conversations with members and found it a useful tool. It was also very eye catching with the heading on the reverse side stating: 'HAM RADIO IS FUN' then displaying their Club Badge and website should anyone want more information. The front of the card states The Radio Operator you met today ————— , leaving space for the name and contact mode to be inserted. What a practical way to meet and greet other amateurs or anyone interested in the hobby.

See card opposite.

Fairfax Community Network News

Historical message: Pat Pavey (call sign VK3OZ) of the Gippsland Gate Radio and Electronics Club sends a morse code message

Hamming it up for radio history

By Elisa Miller

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- Enjoy Social Events
- Investigate new technologies
- Talk to radio amateurs globally
- Learn about & construct electronic projects

GIPPSLAND GATE RADIO & ELECTRONICS CLUB

GGREC

A trip to the museum

Isn't it wonderful how one thing can lead to another? As a result of meeting Graeme VK3BXG at Koo Wee Rup, and listening to his story, I found myself escorting two excited young ladies to the Melbourne Museum in order to catch him working at a Morse Code demonstration for children. It was encouraging to see how many parents and children were willingly seated at the tables and using the cards provided to spell out their names in morse, ably supported by volunteers. Certainly my two were happy to participate I felt it was a unique method to introduce an aspect of radio, in a fun way, to a younger generation. Certainly the parents seemed just as interested in becoming involved.

Tegan and Ellie sending their names in Morse tutored by Graeme VK3BXG.

Graeme's story

As an example of how one person can make a contribution to our hobby, I thought Graeme's story might be of interest to us all. With his permission it is told in his own words. He saw a small advertisement requiring someone with knowledge of Morse to work on week-ends at the Museum. Certain that the job had probably already been filled he was encouraged to apply.

"My Sundays at the Melbourne Museum

I am certainly not the best Morse code operator in the world and I was even more taken back recently when I was offered a Sunday job by the Senior Public Programs officer at the Melbourne Museum.

My "Working with Children" registration, I also learnt, secured me the job.

It proved to be a promotional activity in conjunction with the Titanic Artifacts Exhibition now currently on display at the Museum. Children or anyone for that matter are given an A5 size card with a detailed coloured picture of the Titanic on the front. They are then invited to write their names on the back of the card from top to bottom and then format it into the dot and dashes with a little help from the code printed on the side a Morse code activity.

Nevertheless, at the beginning I asked what I was expected to do and the job description was "demonstration of Morse code and telegraphy equipment" mainly to the volunteers and assist with children on Sundays. The problem was there was no

telegraphy equipment; plenty of volunteers though!

So it was I started off with my own key and my very quiet tone oscillator. This is fine for a one on one but proved inadequate among four or five volunteers. We also agreed that it would also add some fun for the children if they could attempt to send their names in Morse code, no matter how terrible it might sound.

So it was agreed we needed five keys and five tone units.

With budget constraints I searched the net but could only find two keys in Australia that were within price so bought them to keep the programme moving. For tone oscillators I put together three piezo-buzzers and a battery in small cases but ultimately I was not happy with the quality of the sound – we needed something more professional especially for an international class museum.

Meanwhile my web-searching had bought up a supplier in Colorado USA who specialised in Morse equipment – keys and tone oscillators and all could be shipped out within seven days and well within budget. So I decided on five K4 Ameco straight keys and five Ameco code practice oscillators which upon arrival proved to be of very good quality and very professional in appearance.

When I demonstrated these at the Museum for the first time on 9th May all involved commented on how nice it all looked with a comment that the tone oscillators seemed to have that 60's look about them. Also the set of ex-military 1960's headphones now looks the part if parents wish to take a photograph of their child.

Morse card used by children at the Museum.

As we all know there is no easy way to learn the code – weeks, months and even years of monotonous repetitious listening. I decided in this case to teach the volunteers the theory of the correct timing of the characters, the spacing of the letters and words as most important and the correct hand position on the straight key. Finally I point out to them that the Morse code was not just randomly drawn up; it follows a pattern of letter usage as we all know.

In observing the volunteers and the permanent staff showing the children they have learnt well and I hear my words being echoed constantly and the volunteers always conclude with the important part Morse code played in the final call for help in the Titanic disaster.

This whole experience has been very humbling for me; that is be given a free rein by the senior staff without question and except for the printed cards, to set up the whole practical demonstration for the public to participate."

VK100WIA callsign

As part of the WIA Centenary Celebrations, ALARA was one of the organizations who participated in using the anniversary callsign. This occurred over ALARA's birthday weekend from 23rd-25th July, 2010. Many thanks to those operators who were rostered on over this period. Thanks also to those who assisted by manning the online logbook.

Various frequencies were used by the operators and sometimes there were so many people attempting to make contact that "dog piles" were the result. This kept the adrenalin running at times. There have also been reports of some good DX contacts being made.

In addition Jean VK3VIP and her team found themselves featuring in an ATV contact with Peter VK3BFG. This led to some hilarity in the station as the camera was on one side of the room and the video monitor was on the other. Lots of head turning!

A number of other amateurs made contact to let us know

YL ops. Jean VK3VIP, Michelle VK3FEAT, Margaret VK3FMAB.

they had seen the transmission. (We all wished we had known beforehand in order to make appropriate grooming repairs).

VK3 news

Congratulations to Susan VK3LOV who achieved her Advanced licence. We look forward with anticipation to the new call sign.

The ALARA birthday celebrations were held in Sunbury this year where everyone present enjoyed the good company, food and entertainment.

VK6 news

Please note a correction for the VK6 lunch details for the next edition of AR Magazine. The lunch is held on the last Wednesday of the month at the Bayswater Hotel. For further details, contact Poppy VK6YF on 08 62784339.

VK2 news

Norma VK2YL also informed us that NSW ALARA was planning their first birthday party this year. Well Congratulations! Let us know how things fare. We look forward to hearing all about it.

ALARA's birthday luncheon in VK5

We had 22 at our luncheon this year, more then we have had for a few years.

We were at the Glenelg Hotel in Jetty Road this year, where the food was very good; even though a few people had to wait a while for their plates to arrive. It was a lovely day so some of us walked along looking at the shops, so many of which are open on a Sunday. We all agreed this we are promising for the visitors we are expecting in 2012.

In fact one of the reasons for choosing Glenelg as the venue for the International Meet was the fact that Glenelg is open every day of the week, so any spare time could be spent shopping by those who enjoy it. For others, a walk along the beachfront or out on the jetty is always interesting because there is so much activity, at any time.

The people in the picture from l-r are Sue VK5AYL, Myrna VK5YW, Rina, Sue, Jean VK5TSX, Lesley VK5LOL, Colleen;

In the middle of the table is VK5DOL, made by Meg VK5DOL has been to many birthday luncheons and most ALARAMEETS, including Perth, when Meg was not there.

Across the table we have Christine VK5CTY, Shirley VK5YL, Tina VK5TMC, Meg VK5YG, Amanda VK5FAAM, her daughter Victoria and Jenny VK5FJAY At the far end of the table are several OMs of the ladies present.

International YL Meet

ALARA was well represented at the 2010 Munich International YL Meet which has been voted a great success. Our President Tina VK5TMC gave a presentation at the Conference on the next International YL Meet which is to be held in Adelaide, South Australia, in 2012. There has been a great deal of interest already displayed in this event so keep an eye out for further details.

A name from the recent past

At the Friedrickshaven Radio Meet, we had an interpreter known to a number of VK2 amateurs. If you visited the ALARA/HARDAC stall at a Gosford Field Days a few years ago, you may have met Nina VK2INZ, while she was living here. She attended three or four Gosford Field Days and has had her photo in AR with Dot several times

Nina spent four or five years in Australia and now lives in Germany with her husband and little boy.

When a translator was required for the YL Forum, Dot

Tina VK5TMC, Christine VK5CTY and Dot VK2DB and Nina's little boy.

VK2DB suggested Nina and she was happy to oblige. Nina translated for Lois W83EFQ, President of YLRL, for Anne W81ARU immediate Past President of YLRL and for Tina VK5TMC when she made her presentation about the next YL International Meet in Adelaide in 2012, so she was quite busy.

ar

Contests

Craig Edwards VK8PDX
vk8pdx@yahoo.com.au

CONTEST CALENDAR

September	4-5	All Asia DX Contest	SSB
	11-12	Worked All Europe DX Contest	SSB
	18	**Westlakes Cup**	**SSB/DSB/AM**
	18-19	Scandinavian Activity Contest	CW
	25-26	CQWW DX Contest	RTTY
October	**2-3**	**Oceania DX Contest**	**SSB**
	9-10	**Oceania DX Contest**	**CW**
	9-10	Scandinavian Activity Contest	SSB
	16-17	Worked All Germany Contest	CW & SSB
	23	**WIA National Field Day**	**All**
	30-31	**CQWW DX Contest**	**SSB**

This is a great time of the year as some of the big events for Oceania and the world are beginning in September and carry on through to November. Please take note of the changes to the Oceania contest, and it is great to see the low power category being introduced to give a more even playing field.

Oceania DX Contests 2009 Results

The results of the 2009 Oceania SSB and CW contests have now been published and are available in full at www.oceaniadxcontest.com

Congratulations to all the winners and thank you to everyone who participated in the 2009 Oceania DX (OCDX) Contest, even if only to make one or two QSOs. We had a fantastic turnout for the 2009 event. A total of 999 logs was processed which sets a new record for participation in the contest. This is a big step up from the previous record of 783 logs in 2008. The increased participation is very encouraging, especially considering that conditions were not much better than those experienced in 2008. Of particular note is the growth in the number of logs from Europe, increasing from a total of 383 logs in 2008 to 532 logs in 2009. Oceania activity was also up - from a total of 166 logs in 2008 to 187 in 2009. As well as the more common VK, ZL, YB and KH6 stations there were a number of rarer Oceania entities active including 3D2, 9M6, DU, FO8, KH2, P29, and T88.

The conditions were still good enough for several new records to be set in the 2009 contest. Of particular

note is the outstanding performance from VK6AA (operator Bernd Langer VK2IA) in the Oceania CW Single-Op ALL Band category. Bernd's score of 7.17 million easily beats the previous record of 5.60 million set by KH7X in 2003, and has significantly raised the bar in this category. Also of note is the performance of the VK4KW team in the PHONE Multi-Multi category. Their score of 8.86 million is well

ahead of the previous record of 4.99 million set by ZL6QH in 2003.

See table below.

The Australia Club Plaque is awarded to the local club from Australia with the greatest number of member stations participating in the contest. In order for a club to be eligible there must be at least five logs submitted by member stations, with

The winning stations from each continent in the PHONE section are listed below.

Category	Oceania	Asia	Europe	North America	South America
SO ALL	VK6IR	JA7NVF	UU7J	K3ZO	HK3JJH
SO 160	ZL4R	-	-	-	-
SO 80	YB1WR	JM4WUZ	SP3POZ	-	-
SO 40	VK3EW	JO1WKO	UA3MIF	K3TW	PY2ADR
SO 20	VK8PDX	RZ9UI	SP4XQN	-	R1ANC
SO 15	YC1FWO	JA6WFM	YO2R	KS4X	-
SO 10	VK4NEF	JA2MWV	-	-	-
MS	VK6NC	RK9JWV	SN2K	-	-
MM	VK4KW	RW0A	UZ1H	-	-
SWL	-	UA0-107-181	LZ1G42	W1-7897	-

The winning stations from each continent in the CW section are listed below.

Category	Oceania	Asia	Europe	North America	South America
SO ALL	VK6AA	JO1WKO	RX4HZ	N6RO	R1ANB
SO 160	ZL2AGY	-	-	-	-
SO 80	ZL1AZE	JA1PS	UA3MIF	W8IQ	-
SO 40	VK2IM	JR9NVB	SN2K	K3TW	-
SO 20	ZL1BYZ	JK1LUY	RA3EG	K6DBG	R1ANC
SO 15	YD1XUH	JA7DOT	RA3UT	K7SS	PY4XX
MS	ZM2M	RK9JWV	UZ1H	-	-
MM	-	ZM1A	-	-	-
SWL	-	UA0-107-181	SP7-003-24	-	-

each log containing a minimum of 50 valid QSOs. Only two clubs met this requirement in 2009 - the Eastern and Mountain District Radio Club with 6 logs (VK3AVV PH, VK3KIS PH, VK3QI PH, VK3QI CW, VK3TZ PH, VK3TZ CW) and the Northern Corridor Radio Group with 5 logs (VK4KW PH, VK6AA CW, VK6HZ PH, VK6HZ CW, VK6IR PH). The rules state that there must be three or more clubs competing in order for the plaque to be awarded but the plaque sponsor (VKCC) has decided to waive this requirement for the 2009 contest, in the interest of continuing to encourage clubs to support the contest. The ongoing sponsorship of plaques is critical to the future growth and success of this contest. The Contest Committee welcomes new sponsorship offers and invites anyone who is interested in becoming a sponsor to contact the Committee. The cost of sponsoring a plaque is approximately AUD $50.00 per annum, to cover the expenses associated with the manufacture and delivery of the plaques.

The Committee is developing a list of the record scores that have been established in the OCDX Contest over recent years. These records will be published on the web site. It is hoped that the availability of this information will inspire further interest and participation in the contest. Thank you to the members of the Oceania DX Contest Committee who managed the various tasks for the 2009 contest: ZL1AZE, VK3TZ, ZL3GA, VK7GN, VK2HN, VK4TI, VK6DXI, ZL2BSJ/PE7T.

Detailed results can be found on the WIA website: http://www.wia.org.au/members/contests/oceania/

Oceania DX Contests 2010 Rules

1. SPECIAL NOTES for the 2010 Contest
• The SINGLE-OP entry category has been split into High Power (SINGLE OP HP) and Low Power (SINGLE OP LP) categories. Total output power must not exceed 100 Watts in the Low Power category. Rule 7 has been updated to reflect this change
• The MULTI-SINGLE entry category has been deleted. It is replaced by the MULTI-ONE and MULTI-TWO entry categories. Rules 7 and 8 have been updated to reflect these changes.
• Rule 6 has been updated to clarify that only one entry may be submitted by each operator or team of operators.
• All email logs are processed by an email robot. The robot sends an automated email acknowledgement indicating either acceptance or rejection of the log. If you do not receive this acknowledgement,

or are encountering difficulty in having the log accepted, then please contact the Contest Committee at info@oceaniadxcontest.com
• Electronic logs are to be in Cabrillo format which is now generated by all contest logging software programs. Alternatively entrants can use the forms at http://www.b4h.net/cabforms/ to manually create and submit a Cabrillo file.
• Portable prefixes must be inserted in front of the home callsign, e.g. W1XXX operating in ZL1 would sign as ZL1/W1XXX.
• If the station worked does not provide a serial number, then log the received number as 001. See rule 8. This new provision allows credit for contacts with stations that are not in the Oceania DX Contest.
• A reminder that Single-Op Single Band logs must record ALL contacts made by the station - both on the band chosen for the entry and on any other bands.
• Stations must log a minimum of 10 contacts to be eligible for an award.

2. CONTEST PERIODS
PHONE Contest: 0800 UTC Saturday 2 October to 0800 UTC Sunday 3 October 2010
CW Contest: 0800 UTC Saturday 9 October to 0800 UTC Sunday 10 October 2010

3. THE AIM
The aim of the contest is to promote HF contacts with stations in the Oceania region (VK, ZL, Pacific Islands and other locations within the IARU "Worked All Continents" Oceania boundary).

4. THE OBJECT is for:
• Oceania transmitting stations to contact as many stations as possible both inside and outside the Oceania region.
• Non-Oceania transmitting stations to contact as many stations as possible inside the Oceania region. There is no penalty for working non-Oceania stations but contacts between non-Oceania stations will score no points or multiplier credits.
• Oceania receiving (SWL) stations to copy as many contest stations as possible both inside and outside the Oceania region.
• Non-Oceania receiving (SWL) stations to copy as many contest stations as possible inside the Oceania region.

5. BANDS:
160 m – 10 m (no WARC bands).

6. TERMS OF COMPETITION FOR ALL CATEGORIES
• Only one entry is allowed for each operator or team of operators.
• A different callsign must be used for each entry
• High power entrants must not exceed 1500 watts total output power, or the maximum permitted output power in their country, whichever is less, on any band.
• QSO alerting assistance (e.g., packet spots) is allowed in all entry categories, but self-spotting, asking other stations to spot you, or any other form of soliciting QSOs is not allowed.
• All of an entrant's transmitters and receivers must be located within a 500-meter diameter circle or within the

property limits of the station licensee, whichever is greater. All antennas must be physically connected by wires to the transmitters and receivers used by the entrant
• Remote operation is permitted. The entry location of a remote station is determined by the physical location of the transmitters, receivers, and antennas. A remote station must obey all station and category limitations

7. ENTRY CATEGORIES
• Single Operator Low Power (SINGLE-OP LP): Either All Band or Single Band. One person performs all of the operating and logging functions. Total output power must not exceed 100 watts. Only one transmitted signal is permitted at any time.
• Single Operator High Power (SINGLE-OP HP): Either All Band or Single Band. One person performs all of the operating and logging functions. Only one transmitted signal is permitted at any time
• Multiple Operators and Single Transmitter (MULTI-ONE): More than one person can contribute to the final score during the contest period. Only one transmitted signal is permitted at any time. A maximum of ten (10) band changes may be made in any clock hour (00 through 59 minutes). For example, a change from 20 meters to 40 meters and then back to 20 meters counts as two band changes. Use a single serial number sequence for the entire log.
• Multiple Operators and Two Transmitters (MULTI-TWO): More than one person can contribute to the final score during the contest period. A maximum of two transmitted signals is permitted at any time on different bands. Either transmitter may work any and all stations. A station may only be worked once per band regardless of which transmitter is used. The log must indicate which transmitter made each QSO. Each transmitter may make a maximum of eight (8) band changes in any clock hour (00 through 59 minutes). For example, a change from 20 metres to 40 metres and then back to 20 metres counts as two band changes. Use a separate serial number sequence for each band.
• Multiple Operators and Multiple Transmitters (MULTI-MULTI). More than one person can contribute to the final score during the contest period. No limit to transmitters, but only one transmitted signal (and running station) allowed per band at any time. Use a separate serial number sequence for each band
• SWL Short Wave Listener (Receive Only), All Band.

8. EXCHANGE:
RS(T) report plus a progressive contact serial number starting at 001 and incrementing by one for each contact. MULTI-TWO and MULTI-MULTI entries must use a separate serial number starting at 001 for each band. If the station worked does not send a serial number,

The Oceania DX Contest 2009 Results

Annex 1: 2009 Oceania DX Contest PHONE Results

* Country Leader   ** Continent and Country Leader

Category	Call	Score	Mults	Total QSOs	160M QSOs	80M QSOs	40M QSOs	20M QSOs	15M QSOs	10M QSOs
				Oceania	Australia					
PH SO ALL	VK5IR**	3525525	675	1253	10	59	785	291	107	1
PH SO ALL	VK2APG	1671578	607	1118	0	10	327	547	230	4
PH SO ALL	VK6DX	1646304	528	815	8	46	387	210	143	3
PH SO ALL	VK4ZD	856830	390	645	3	37	245	196	146	18
PH SO ALL	VK4HAM	656205	451	710	0	3	113	352	218	24
PH SO ALL	VK4VCH	484404	222	475	0	19	384	72	0	0
PH SO ALL	VK3IO	342510	210	323	3	19	268	25	8	0
PH SO ALL	VK8NS8	331150	370	560	0	3	244	303	10	0
PH SO ALL	VK3TZ	189600	158	241	6	15	174	34	10	2
PH SO ALL	VK4EMM	145165	155	256	0	7	148	81	8	12
PH SO ALL	VK4FI	136363	169	237	11	4	66	110	31	15
PH SO ALL	VK7GN	105165	109	175	4	6	165	0	0	0
PH SO ALL	VK5hPR	96985	119	230	0	6	126	73	23	2
PH SO ALL	VK2BJ	87449	157	205	9	10	14	142	25	5
PH SO ALL	VK2HN	79344	171	263	0	0	36	172	53	2
PH SO ALL	VK3AVV	73392	132	207	0	10	57	109	31	0
PH SO ALL	VK2BD	54165	69	130	4	33	70	21	0	2
PH SO ALL	VK8+P8	51754	113	215	0	0	21	35	159	0
PH SO ALL	VK2ACC	48279	77	145	5	13	64	50	12	1
PH SO ALL	VK2HBG	39845	65	141	0	22	64	37	18	0
PH SO ALL	VK6HZ	34778	138	177	0	0	0	104	71	2
PH SO ALL	VK2TGM	33178	58	107	7	8	65	27	0	0
PH SO ALL	VK2GD	32708	52	103	10	12	56	21	4	0
PH SO ALL	VK7FWAY	30734	37	130	0	40	84	0	6	0
PH SO ALL	VK2PDX	28044	57	109	0	8	72	12	11	6
PH SO ALL	VK4HEC	22491	63	101	0	7	44	33	17	0
PH SO ALL	VK2LAW	22446	43	118	0	9	77	21	7	4
PH SO ALL	VK62RW	17250	46	66	0	15	42	3	6	0
PH SO ALL	VK4ATH	12862	59	81	0	0	26	30	17	8
PH SO ALL	VK7ARN	12330	33	61	8	1	41	11	0	0
PH SO ALL	VK3FASW	10584	27	78	0	4	68	0	6	0
PH SO ALL	VK3MDX	8320	64	71	0	0	12	48	11	0
PH SO ALL	VK6NDT	8211	51	66	0	2	12	23	29	0
PH SO ALL	VK3K.S	7805	35	60	0	5	28	6	0	0
PH SO ALL	VK2FHQQ	7728	23	71	0	2	59	0	9	1
PH SO ALL	VK4BL	5945	41	48	1	2	15	30	0	0
PH SO ALL	VK4CAG	5763	51	64	0	0	6	37	17	4
PH SO ALL	VK3BUH	5100	25	40	0	8	23	9	0	0
PH SO ALL	VK3AKT	4991	31	49	0	2	21	16	10	0
PH SO ALL	VK3TDX	4668	29	38	0	4	18	4	3	9
PH SO ALL	VK4MON	3741	29	37	0	0	21	10	4	2
PH SO ALL	VK3QI	3485	41	61	0	0	6	55	0	0
PH SO ALL	VK1.AN	2844	18	41	0	0	29	11	1	0
PH SO ALL	VK2KTT	2544	15	38	0	3	27	4	0	0
PH SO ALL	VK3AFK	1800	14	21	1	7	8	5	0	0
PH SO ALL	VK3TL	680	20	34	0	0	0	24	10	0
PH SO ALL	VK4GLC	728	13	15	0	5	8	0	0	2
PH SO ALL	VK5FDX	252	7	8	0	0	6	0	0	0
PH SO ALL	VK3DAG	30	2	2	0	1	1	0	0	0
PH SO 40M	VK3EW**	1567165	379	827	0	0	827	0	0	0
PH SO 40M	VK6WAM*	839535	291	577	0	0	577	0	0	0
PH SO 40M	VK3YXC	52440	69	152	0	0	152	0	0	0
PH SO 40M	VK3VTH	44660	58	154	0	0	154	0	0	0
PH SO 40M	VK1HW	19035	47	81	0	0	81	0	0	0
PH SO 40M	VK4AN	13640	44	62	0	0	62	0	0	0
PH SO 40M	VK4JAZ	1150	10	23	0	0	23	0	0	0
PH SO 20M	VK6PDX*	129195	261	495	0	0	0	495	0	0
PH SO 20M	VK4KND	52128	181	288	0	0	0	288	0	0
PH SO 15M	VK4FJ*	18080	80	113	0	0	0	0	113	0
PH SO 10M	VK4NE**	3312	23	48	0	0	0	0	0	48
PH SO 10M	VK6AA	180	4	15	0	0	0	0	0	15
PH MS	VK6NC**	2761875	625	1128	11	31	678	317	91	0
PH MS	VK3FRC	194194	143	307	0	63	121	123	0	0
PH MM	VK4KW**	8855975	1175	2153	0	249	608	682	513	103

PHONE Operators

Call	Operators
VK3FRC	VK3GB VK3AEJ VK3,PA
VK4KW	VK4BAA VK4T1 VK4NDX
VK6NC	VK6IA VK6BEC VK6VY VK6NU VK6RK VK6EH

Annex 2: 2009 Oceania DX Contest CW Results

* Country Leader   ** Continent and Country Leader

Category	Call	Score	Mults	Total QSOs	160M QSOs	80M QSOs	40M QSOs	20M QSOs	15M QSOs	10M QSOs
				Oceania	Australia					
CW	SO ALL	VK6AA**	7178724	934	1649	0	248	685	254	259
CW	SO ALL	VK6DX	4733550	785	1279	8	295	370	144	460
CW	SO ALL	VK4EMM	4366906	605	1207	0	273	362	287	254
CW	SO ALL	VK3TDX	691808	416	814	0	27	171	294	122
CW	SO ALL	VK2BJ	560112	336	488	2	49	164	193	56
CW	SO ALL	VK3IO	348635	245	294	3	59	132	87	13
CW	SO ALL	VK3TZ	299811	219	275	4	60	118	87	6
CW	SO ALL	VK2FN	204918	294	435	0	3	34	299	99
CW	SO ALL	VK4AN	187596	243	324	0	5	90	188	39
CW	SO ALL	VK5MAV	185168	163	239	0	6	210	20	3
CW	SO ALL	VK4TT	102067	199	242	0	2	33	104	97
CW	SO ALL	VK6HZ	13198	84	93	0	0	29	64	
CW	SO ALL	VK3QI	10224	72	96	1	3	0	92	0
CW	SO ALL	VK3GDM	2772	22	24	0	6	12	6	0
CW	SO 40M	VK2IM**	1525056	393	827	0	0	827	0	0
CW	SO 40M	VK4SN	111510	118	189	0	0	189	0	0
CW	SO 20M	VK4GN	198250	325	610	0	0	0	610	0
CW	SO 20M	VK7GYD	69112	212	326	0	0	0	326	0
CW	SO 20M	VK5SW	46956	172	273	0	0	0	273	0
CW	SO 20M	VK4TJF	33258	152	219	0	0	0	219	0
CW	SO 20M	VK3CTN	11284	91	114	0	0	0	114	0
CW	CK	VK6N5B	79158	167	237	0	0	0	0	237
CW	CK	VK2CCC	1080	6	9	3	5	0	0	0

then the received number is to be logged as 001

9. MULTIPLIER:

The multiplier is the number of different valid prefixes worked. Note that the same prefix may be counted once on each band for multiplier credit. A prefix is the letter/numeral combination that forms the first part of the amateur call - the same as the CQ WPX contest definition.

Examples of valid prefixes are N8, W8, WD8, KG1, HG19, KC2, OE2, OE25, etc. Any difference in the numbering, lettering, or order of the same shall constitute a separate prefix. A station operating from a DXCC country different from that indicated by its callsign is required to sign portable. The portable prefix must be an authorized prefix of the country/call area of operation. In cases of portable operation, the portable designator will then become the prefix. Example: N8BJQ operating from Wake Island would sign KH9/N8BJQ or NH9/N8BJQ. KH6XXX operating from Ohio must use an authorized prefix for the U.S. 8th district (W8, K8, etc.) Portable designators w.thout numbers will be assigned a zero (0) after the second letter of the portable designator to form the prefix. Example: PA/N8BJQ would become PA0. All calls without numbers will be assigned a zero (0) after the first two letters to form the prefix. Example: XEFT/JW would count as XE0. Maritime mobile, mobile, /A, /E, /J, /P, or interim licence class identifiers do not count as prefixes. Special event, commemorative, and other unique prefix stations are encouraged to participate. Prefixes must be assigned by the licensing authority of the country of operation.

10. CONTACT POINTS:

Each QSO is credited twenty points on 160 m; ten points on 80 m; five points on 40 m; one point on 20 m; two points on 15 m; and three points on 10 m. Note that the same station may only be counted once on each band for contact points.

11. THE FINAL SCORE

final score is the sum of the Contact Points multiplied by the Multiplier (the total number of prefixes worked on all bands, noting that the same prefix can be counted once on each band).

12. AWARDS

Each station must log a minimum of 10 contacts to be eligible for an award. Certificates will be awarded to the top scoring station in each category listed under Section 7 for each IARU WAC continent and each country. A special participation certificate will be awarded to every station that makes at least 100 QSOs in either the PHONE or CW sections of the contest. The trophies and plaques to be awarded will be available on www.oceaniadxcontest.com

13. GENERAL LOG REQUIREMENTS:

Transmitting entries are to submit a log showing the following details for each contact - band or frequency, mode, date, time in UTC, callsign of station worked, RS(T) and serial number sent, RS(T) and serial number received. SINGLE-OP Single Band logs are to record ALL contacts made by the station both on the band chosen for the entry and on any other bands. All logs must be submitted in date/time order. All duplicate contacts must be shown - DO NOT delete duplicate contacts. No penalty will be applied for showing duplicate contacts. For SWL entries see the above web address for more details.

14. ELECTRONIC LOGS

ELs are preferred and are compulsory for stations logging more than 50 contacts. For details on electronic and paper log submission, visit the complete rules at www.oceaniadxcontest.com

15. PAPER LOGS:

Electronic Logs are preferred (see Rule 14 above) but paper logs of less than 50 contacts in the Oceania DX Contest format may be submitted. Each paper log is to be accompanied by a summary sheet that clearly states
The station's callsign
   Operator callsign/s
   Entrant's name and mailing address (for

receipt of awards)
Mode and Category entered
Contact points claimed on each band
Number of multiplier prefixes claimed on each band
Total claimed score

Official log sheets and summary can be downloaded from the Oceania DX Contest web site at www.oceaniadxcontest.com. If you do not have access to the official forms then you may make your own in accordance with the general requirements outlined above and in Section 13. Paper logs are to be are to be posted to Oceania DX Contest, c/o Wellington Amateur Radio Club Inc. PO Box 6464, Wellington 6030, New Zealand. Only one entry is to be included in each submission. Airmail please for logs from outside VK or ZL.

16. DEADLINE

All logs must be emailed or postmarked NO LATER than 8 November 2010. The reception of logs will be acknowledged by the email robot (for electronic submissions) and a listing of all logs received by the robot will be posted on the Oceania DX Contest website.

17. DISQUALIFICATION

Violation of amateur radio regulations in the country of the contestant or the rules of the contest; unsportsmanlike conduct, or taking credit for excessive unverifiable QSOs or multipliers will be deemed sufficient cause for disqualification. Incorrectly logged calls will be counted as unverifiable contacts. ANY entrant that uses means, other than contacts on the permitted bands and modes, to SOLICIT, ARRANGE, or CONFIRM any contacts during the contest is unsportsmanlike and the entry will be subject to d.squalification.

The latest information about the contest will be published on the Oceania DX Contest web site at www.oceaniadxcontest.com. Any questions can be emailed to info@oceaniadxcontest.com or posted to Oceania DX Contest Committee, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand

Winter VHF-UHF Field Day 2010 Results

Contest manager: John Martin VK3KM

The Winter Field Day saw a significant jump in activity, with some participants reporting more activity than in the last Summer Field Day. According to the rules, the winners of Section A or C are excluded from Section B or C.

This resulted in a total of 72 logs, which is very encouraging. Another interesting feature is the further increase in VKS activity. The new Rover category attracted three entries, and the rover activity has been a scoring bonus for other stations as well.

Summer Field Day: Score Correction
In the published results for the Summer Field Day, Matt Hetherington VK2DAG entered two sections, but his score was accidentally omitted from one of them. His scores should have been 1404 points for Section A and 1231 points for Section B

The section winners were:

Section A – Iain Crawford VK5ZD;

Section B – Dave Nelson VK7DN;

Section C – the Blasco family station VK3ALB;

Section D – Alan Devlin and Michael Coleman operating as VK3XPD;

Section E – Ross Keogh VK3MY; and

Section F – Tim Dixon VK5ZT.

Congratulations to all, and I hope you will all be back for the Spring Field Day on November 20/21. Remember that you will receive a special certificate if you are able to participate in all three Field Days in this WIA centenary year.

Full results over page

Winter VHF-UHF Field Day 2010 Results

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	TOTAL
Section A: Single Operator, 24 Hours
VK5ZD	Iain Crawford	PF95, PF96	81	330	540	608	640	660	640	660	640	4799
VK4OE	Doug Friend	QG62	61	348	480	572	680	450	-	450	-	3141
VK3JTM	Tim Morgan	QF12	21	501	685	936	570	-	-	340	-	3033
VK4HBO	James Kep	QG61, QG62	-	234	375	284	440	-	-	-	-	1313
VK3ECH	Rob George	QF23	-	368	415	332	-	-	-	-	-	1133
VK3VCL	Wayne Bruce	QF07	-	300	415	360	-	-	-	-	-	1075
VK5FANA	Adrian Addison	PF85	-	398	625	-	-	-	-	-	-	1021
VK2AMS	Mark Swannack	QF68	24	126	150	232	250	-	-	-	-	787
VK1PAR	Al Long	QF44	14	360	355	-	-	-	-	-	-	729
VK5FPAW	Paul Schulz	PF94, PF95	-	240	345	-	-	-	-	-	-	585
VK1AGP	Greg Parkhurst	QF44	61	222	270	-	-	-	-	-	-	553
Section B: Single Operator, 8 Hours
VK2TDN	Dave Nelson	QF56	-	192	205	352	210	-	-	330	-	1369
VK5AKH	Andrew Hall	PF95	60	333	390	320	-	220	-	-	-	1323
VK3HY	Gavin Brain	QF33	32	330	485	472	-	-	-	-	-	1299
VK3HRX	Compton Allen	QF36	59	309	355	536	-	-	-	-	-	1258
VK4DAG	Matt Hetherington	QG61	-	159	250	384	220	-	-	220	-	1233
VK4ADC	Doug Hunter	QG61	118	240	310	354	-	-	-	-	-	1142
VK3YFL	Bryan Dunkley-Smith	QF22	47	249	330	488	-	-	-	-	-	1114
VK5LA	Andrew Willlos	PF95	-	308	432	-	-	-	-	-	-	1112
VK5OM	Jim Bywaters	QF03	21	248	350	440	-	-	-	-	-	1060
VK2GG	Dan Joyce	QF56	22	108	180	192	210	-	-	330	-	1042
VK5HZ	David Ross	PF95	-	120	320	272	-	-	-	210	-	1000
VK4UH	Kevin Johnston	QG62	79	246	330	280	-	-	-	-	-	935
VK5AR	Alan Raftery	PF95	66	339	505	-	-	-	-	-	-	910
VK1BL	Ted Garnett	QF44	33	138	235	-	210	-	-	210	-	826
VK5FANA	Adrian Addison	PF85	-	336	480	-	-	-	-	-	-	826
VK5KOS	Keith Gooley	PF95	47	180	265	280	-	-	-	-	-	772
VK5OOM	Rob Greaves	QF56	-	114	165	-	-	-	-	330	-	629
VK5FMJF	Matt Ferris	PF95	-	225	355	-	-	-	-	-	-	580
VK2CQ	Dave Maloney	QF56	-	78	130	-	-	-	-	230	-	438
VK1DA	Andrew Davis	QF44, QF45	-	153	205	-	-	-	-	-	-	358
VK4AAJ	Grant McDuling	QG62	-	111	245	-	-	-	-	-	-	356
VK2CZ	David Burger	QF56	-	-	-	272	-	-	-	-	-	272
VK3SF	Ross Sargent	QF22	-	63	-	-	-	-	-	-	-	63
VK2TRF	Jack Swart	QF56	-	63	-	-	-	-	-	-	-	63
Section C: Multi Operator, 24 Hours
VK3ALB	(1)	QF11	21	552	795	808	500	-	-	-	-	3335
VK2AL	LUMEG (2)	QF21	21	333	430	656	590	210	330	450	480	2690
VK4WIS	SCARC (3)	QG63	130	324	445	480	500	340	-	480	-	2685
VK5LZ	Elizabeth ARC (4)	PF85	100	402	565	488	-	-	-	-	-	1615
VK4WIE	CBRS (5)	QG62	21	402	450	610	-	-	-	-	-	1589
VK3ER	EMDRC (6)	QF21, QF22	58	207	300	352	-	-	-	-	-	917
VK2FIL	(7)	QF46	24	456	320	-	-	-	-	-	-	800
Section D: Multi Operator, 8 Hours
VK3XPD	(8)	QF21	-	309	355	456	430	210	210	320	-	2290
VK4CZ	(9)	QG63	88	189	295	378	210	-	-	210	-	1368
VK2EH	CCARC (10)	QF56	47	213	185	288	-	-	-	-	-	733
VK1DSH	(11)	QF45	23	81	140	-	210	-	-	210	-	864
VK2MA	HADARC (12)	QF21	42	159	230	-	-	-	-	-	-	431
VK3BJA	GGREC (13)	QF21	-	141	105	-	-	-	-	-	-	246
Section E: Home Station, 24 Hours
VK3MY	Ross Keogh	QF22	22	510	620	904	450	-	-	-	-	2506
VK5NE	Paul Roehrs	PF95	62	471	500	344	-	-	-	210	-	1567
VK3VFO	Nick Krashe	QF31	39	618	625	240	-	-	-	-	-	1522
VK3PF	Peter Freeman	QF31	21	495	515	280	-	-	-	-	-	1311
VK5VCO	Paul Mullins	PF95	44	447	645	-	-	-	-	-	-	1134
VK4TJ	John Kirk	QG62	47	285	345	400	-	-	-	-	-	1077
VK3TFN	Peter Roberts	QF32	-	294	305	472	-	-	-	-	-	1071
VK4ZDP	David Purkis	QH32	102	339	395	184	-	-	-	-	-	1020
VK3KH	Michael Coleman	QF21	-	249	350	376	-	-	-	-	-	975
VK2MER	Kirk Mercer	QF55	44	276	305	344	-	-	-	-	-	969
VK2EI	Neil Sandford	QF68	62	174	165	240	250	-	-	-	-	868
VK5LSB	Simon Brandenburg	PF94	32	195	310	188	-	-	-	-	-	705
VK2PR	Rod Preston	QG62	-	216	-	460	-	-	-	-	-	678
VK5KEF	Matthias Finsscher	PF85	-	297	350	-	-	-	-	-	-	647
VK3HV	George Francis	QF31	32	354	180	-	-	-	-	-	-	586
VK4NA	Alan Mills	QG62	54	237	270	-	-	-	-	-	-	561
VK5FD	Allen Dunn	PF95	38	189	305	-	-	-	-	-	-	532
VK5FAYL	Jade Rose	PF95	-	150	195	-	-	-	-	-	-	500
VK3FDNO	Dean Webster	QF31	-	213	205	-	-	-	-	-	-	413
VK3TOM	Tom Steadman	QF31	29	186	195	-	-	-	-	-	-	389
VK3NR	David Porter	QF56	-	147	240	-	-	-	-	-	-	360
VK3BG	Ed Roache	QF24	21	63	105	-	-	-	-	-	-	189
Section F: Rover Station, 24 Hours
VK5ZT	Tim Dixon	PF85,86,87, 95,96,97	142	483	785	1144	640	1400	640	640	640	6514
VK5AGZ	Derek Reuther	PF85,86,87,94, 95,96,97	165	534	860	1086	-	1380	-	-	-	4007
VK5GT	Ross Masterson	QF45, QF55, QF56	-	297	265	-	-	-	-	-	-	1284

[1] Jou Blasco VK3ALB, Nik Presser VK3BA, Peter Westgarth VK3APN, Jono Blasco VK3FJEM, Michael Blasco VK3FMIC

[2] Jana JHf-Alkoween Experimenters Group Chas Giuccanro VK3PY, David Learmonth VK3DB

[3] Sunshine Coast Amateur Radio Club Harvey Wicks VK4HRI, Leonater Hibbert VK4ALH, Trevor Humphrey VK4FGTS, Dac Tysoe VK4FMQZ, Wayne Shaw VK4WS, Mike Little VK4YFL, Hardy Zuttel

[4] Elizabeth ARC Bruce Gaunt VK3NHB, John Ross VK5NI, Wayne Ranken VK3NIR

[5] City of Brisbane Radio Society John Morris VK4MJ: Mark Daledge VK4FLST, James Young VK4TJLY, David Noble VK4KSY, David Colldge VK4VNC, Ian Melville VK4FABD

[6] Eastern & Mountain District Radio Club: M. Subocz VK3AVV, M. Chadwick VK3WT, J. Bramham VK3WWW VK3FMIC

[7] Phil Derbyshire VK2FIL, Colin Shirvas VK3FABW, Paul Thomas VK2WPT

[8] Alan Devlin VK2DTD, Michael Coleman VK3KH

[9] Scott Watson VK4CZ, Kari Meek VK4WK, Campbell Watson

[10] Central Coast ARC VK2JDH, VK2KCM, VK2JDD, VK2KRE

[11] Dale Hughes VK1DSH, Dimitris Tsitalis VK1SV

[12] Hornsby & District ARC VK2DMY, VK2TIP, VK2FDW, VK2FMAM

[13] Gippsland Gate Radio & Electronics Club: Mike Ide VK3KTO, Albert Hubbard VK3BQO

2010 CQ World Wide RTTY Contest Rules

Mode: RTTY

Date: September 25-26, 2010

Time: 0000 UTC Saturday to 2400 UTC Sunday

Objective:

For amateurs around the world to contact as many other amateurs in as many zones, countries, U.S states and VE areas as possible

Bands:

3.5, 7, 14, 21, and 28 MHz Baudot mode only. No unattended operation or contacts through gateways or digipeaters permitted. All entrants must operate within the limits of their chosen category when performing any activity that could impact their submitted score. Only the entrant's callsign may be used to aid the entrant's score. A different callsign must be used for each entry. All entrants must not exceed 1500 watts total output power, or the maximum output power of their country, or the power limit of their entry category, whichever is less, on any band. Self-spotting or asking other stations to spot you is not allowed. All operation must take place from one operating site. Transmitters and receivers must be located within a 500-meter diameter circle or within the property limits of the station licensee, whichever is greater. All antennas must be physically connected by wires to the transmitters and receivers used by the entrant. The entry location of a remote station is determined by the physical location of the transmitters, receivers, and antennas. A remote station must obey all station and category limitations.

Entry categories:

Single Operator (All Band or Single Band):

For all single operator categories, only one person (the operator) can contribute to the final score during the official contest period. QSO alerting assistance of any kind (this includes, but is not limited to, Packet, local or remote Skimmer and/or Skimmer-like technology, Internet) places the entrant in the Single Operator Assisted category.

1 Single Operator High (*SO High*): One person. One signal at a time. QSO alerting assistance of any kind is not allowed.

2 Single Operator Low (*SO Low*): Same as *SO High* except total output power per band must not exceed 100 watts.

3 Single Operator Assisted (*SOA*): One person. One signal at a time. QSO alerting assistance is allowed. No power subcategories.

NOTE: Each of these three entry categories can be entered as All Band (*AB*) or Single Band (*SB*). Single band logs must include all QSOs made on other bands, if any. The *AB* or *SB* entry

category is specified in the log's Cabrillo header. Any QSOs in the log on bands other than the *SB* entry will be treated similar to a check-log.

Multi-Operator (all band operation):

1 Single-Transmitter High (*MS High*): Only one transmitter, limited to 8 band changes in any clock hour (00 through 59 minutes). For example, a change from 20 metres to 40 metres and then back to 20 metres constitutes two band changes. Exception: One—and only one—other transmitter may be used if and only if—the station worked is a new multiplier. This second transmitter is also limited to eight band changes in any clock hour. Violation of the eight band change rule will result in reclassification to the *MM* category. Logs must show which transmitter made each QSO ('0' for the primary transmitter and '1' for the second multiplier transmitter, shown in column 81 of the Cabrillo format).

2 Single-Transmitter Low (*MS Low*): Same as *MS High* except total output power per band must not exceed 100 watts.

3 Two-Transmitter (*M2*): A maximum of two transmitted signals at any time, each on a different band. Only one running transmitter allowed per band. Either transmitter may be used to work any and all stations. A station may be worked once per band regardless of which transmitter is used. Logs must show which transmitter made the QSO ('0' and '1' shown in column 81 of the Cabrillo format). Each of the two transmitters may make a maximum of 8 band changes in any clock hour (00 through 59 minutes). For example, a change from 20 meters to 40 metres and then back to 20 metres constitutes two band changes. Violation of the eight band change rule may result in reclassification of the entry to the *MM* category. No power subcategories.

4 Multi-Transmitter (*MM*): No limit to the number of transmitters, but only one signal and running transmitter allowed per band. No power subcategories.

Exchange:

RST plus zone (e.g., 599 14). US and VE stations also send US state or VE area (e.g., 599 05 MA, are multipliers below.)

Multipliers:

Three types of multipliers will be used.

1 A multiplier of one (1) for each different zone contacted on each band.

2 A multiplier of one (1) for each different country contacted on each band.

3 A multiplier of one (1) for each different US "lower-48" state and VE area contacted on each band.

Stations are permitted to contact their

own country and zone for multiplier credit. The CQ Zone Map, DXCC country list, WAE country list, and WAC boundaries are standards. Maritime mobile stations count only for a zone multiplier. One multiplier for each US state (48) and each Canadian area (14) on each band. Please use only official U.S. Postal Service abbreviations to identify states (e.g., Michigan = MI, Massachusetts = MA, Ohio = OH). *Note:* Alaska (KL7) and Hawaii (KH6) are counted as country multipliers only and not as state multipliers. Canadian areas (14 total) are as follows: NB (VE9), NS (VE1), QC (VE2), ON (VE3), MB (VE4), SK (VE5), AB (VE6), BC (VE7), NWT (VE8), NF (VO1), LB (VO2), NU (VY0), YT (VY1), PEI (VY2).

Points:

1 Contacts between stations on different continents are worth three (3) points.

2 Contacts between stat ons on the same continent but different countries, two (2) points.

3 Contacts between stations in the same country, one (1) point.

Scoring:

All stations: the final score is the result of the total QSO points multiplied by the sum of your zone, country and US state/VE area multipliers. *Example:* 1000 QSO points x 100 multipliers (20 Zones + 40 Countries + 40 States/Areas) = 100,000 (final score)

Awards:

First place certificates will be awarded in each category listed in every participating country and in each call area of the United States, Canada, Russia, Spain, Australia and Japan. All scores will be published. To be eligible for an award a Single Operator station must show a minimum of 12 hours of operation. Multi-operator stations must operate a minimum of 24 hours. A single-band log is eligible for a single-band award only. Single band entrants who also operate on other bands must include those QSOs in their logs. *Note:* The single band entry is specified in the Cabrillo header. In countries or call areas where the returns justify, 2nd and 3rd place awards will be made. See www.cqwwrtty.com for awards/plaques, details of the club competition and log submission instructions

WRTC 2010 Results

Congratulations to the Russian duo of RW1AC and RA1AIP for making the home nation proud in winning the 2010 World Radiosport Team Championships held in Russia. ES5TV and LS2RR won the Silver while the team of N6MJ and KL9A came third. Our team of VK2IA and VK6LW came in 44th in this competitive event and all the details are at www.wrtc2010.ru

VHF/UHF an Expanding World

David Smith VK3HZ – vk3hz@wia.org.au

Weak Signal

David Smith VK3HZ

The origins of the title for this column go back at least 40 years to a time when the VHF/UHF bands were a fairly specialised area. Becoming operational on the 23 cm required building exotic equipment and the bands above that were very tricky technology. This, I believe, led to the phrase "An Expanding World" meaning that it was one of the few areas of Amateur Radio in which experimentation and innovation was still quite extensive.

Fast-forward to today and we now have a wide selection of off-the-shelf rigs that cover the VHF/UHF bands up to 23 cm and do quite a respectable job of it. While there is still some innovative work going on, such new digital communication modes and high power solid-state amplifiers, most of the technology is now well established.

Those who, 40 years ago, might have experimented in the VHF/UHF region are now getting their hands dirty in the mid to upper microwave regions – what I believe is now "The Expanding World".

All this is in way of a mild apology to VHF/UHF enthusiasts, because this month's column is devoted entirely to the microwave areas where we are currently seeing a surge of interest.

New 10 GHz World Record

For a number of years, the 10 GHz World Distance Record was held by Australian amateurs. On 30/12/1994, Roger VK5NY/5 portable near Adelaide worked Wally VK6KZ/6 portable in the south of VK6 over a distance of 1912 km. This record stood until 2000 when DL4AM and DJ3KM worked over a distance of 2070 km. Recently, the distance has again been bettered.

On 10/7/2010, a group of six Swiss hams located in the Cape Verde Islands worked into Portugal over a path of 2696 km. They used SSB and the QSO continued for almost 25 minutes. Earlier in the day, they had already broken the record with a contact into Morocco over 2200 km.

All is not lost for VK however. We do have good sea paths of greater distance – for example, from the southern tip of VK6 across to Wilson's Prom is 2700 km and to the northeastern tip of VK7 is about 2870 km. Unfortunately, these areas are sparsely populated with microwave operators, so portable operations would be necessary. As well, suitable propagation would be very rare. Perhaps we should investigate the establishment of beacon stations that can also be remotely operated for the occasions when openings do occur.

New series of microwave transverters

Graham VK3XDK has been working on the design of simple, no-tune transverters for the microwave bands 2.4 GHz, 3.4 GHz, 5.7 GHz and 10 GHz. Performance testing of the prototypes by Alan VK3XPD has shown very good results.

The transverters use MMICs and low cost mixers with no-tune stripline filtering on the board. The standard IF is 70 cm, but 2 m is also an option for some of them. No

onboard RF switching is included, with separate chains for the transmit and receive paths. Each transverter has a separate multiplier board for generating the LO from a lower frequency oscillator. A synthesised oscillator board is currently under development. The PCBs are made from Teflon board with the transverter board roughly 100 x 60 mm and the slightly longer multiplier roughly 120 x 60 mm in size. The boards are glued to an aluminium base using silver epoxy glue.

Prototype boards that have been hand-etched by Graham are shown in the accompanying photos.
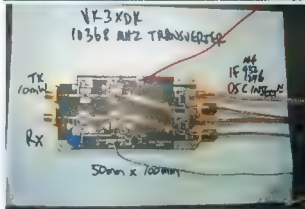
For earthing, the prototype boards use tiny screws which have proven somewhat fragile. Graham and Alan are currently investigating having the boards professionally produced using plated-through holes for the earthing.

It is proposed that kits will be supplied with the blank PCB already glued to the aluminium base. Assemblers then fit the supplied SMD components etc. themselves. No pricing is currently available, but will be "at-cost" and so very reasonable.

More information may be found at: http://www.vk9na.com/ Transverters.html

With very limited advertising on the VK-Microwave group, there are currently Expressions of Interest from 30 Amateurs for about 60 transverters. If you are interested, please contact Alan VK3XPD on alandevlin@bigpond.com

24 GHz surplus transverters

Recently on "that" auction site, a number of 23 GHz and 26 GHz transceiver modules appeared from an Israeli seller. These were snapped up quickly, but if you do see one available, they appear to be the basis of a very good transverter for 24 GHz. These modules, originally manufactured by the French company Thales, have

quite impressive specifications for their small size. The quoted power output is over 1 watt with very low IF drive requirement of –20 dBm. The LO is at half frequency (12 GHz) at +12 dBm. Output is direct to waveguide, although waveguide to SMA transitions could be used allowing a cheaper (and higher loss) SMA relay to be used for T/R switching.

An article appeared in a recent issue of the UK Microwave Group magazine *Scatterpoint* described the simple conversion of one of these modules to 24 GHz.

47 GHz experiments

Dan VK2GG has been developing a 47 GHz setup based on a Kuhne transverter with an Elcom synthesiser as LO and 432 MHz IF.

On Sunday 8th August, he and Peter VK2YGM tested his two transverters over two short paths. Using 0.15 mW directly from the transverters into 36 dB dishes, signals were reported as "full scale" over an 8.3 km line-of-sight path. That is already a VK2 record. The dishes are very sharp - beamwidth is about one degree - so accurate pointing is required.

On Friday 13th, they extended to distance to 32.3km over a sea path with lots of sea spray. Look out for more to come.

MADs

Matt VK2DAG is proposing regular Microwave Activity Days to boost activity on the microwave bands. He writes:

I would like to get more action happening then just three contests a year!

Your wife and family know that there is a set day per month that you want to go out and play.

Other people with microwave (uW) gear will go out and play as they will know there will be someone out there.

You can haul the uW curious out with you to show its done.

Get out and test those possible field sites you have seen on Google maps.

So how does the 3rd Sunday of each month sound?

15th August, 19th September, 17th October, 20/21st November (also the VHF/UHF Field Day) and 19th December

Between 10 am and 2 pm local. Gives enough time to get anywhere and set up.

Liaison on 146.500 FM simplex calling. Far enough away from transverter IFs and pager crud (most of us will set up on hill tops close to pager sites, so the further away the better).

Go here http://www.heywhatsthat.com/ and zoom in on the hills you want to try. Select "New Panorama", give it a name (I have been calling the sites I have been looking at VK2 hill name). After the website has processed your request on the map press "Visibility Cloak" to see what you can see and also press "Show Profile" to see what the terrain is like between any points you click on the map.

Justin VK2CU and I are planning to have a test of 13 cm (2403) on Sunday 15th August. I will be going to hill at Killcare QF56ql. I will also throw in 3 cm and 13 cm (2301).

All reports are that Sunday 15th was a great success. According to Matt:

Good to see a bunch of us get out there and have a go. Also good to see some spots from VK4 (VK4OX, VK4OE and VK4WIS were also out in Queensland).

I was mostly happy with my gear. Had some cable fails and other pitfalls, so now I know how what to fix and what needs improving. 100 km on 3 cm and almost making a contact on 6 cm - all good. VK2XDE Steve and I had the chance to test theory we have been toying with on 2403.

12 cm VK2XDE Steve and VK2CU Justin.

6 cm VK2CU Justin.

3 cm VK2GOM Rob and VK2TRF Jack.

Jack VK2TRF had the idea of swapping the day (alternate

Matt VK2DAG on 10 GHz

Saturday/Sunday) each month so we can capture more happy uWers. Next month some people have already organized Sunday, so I suggest we go forward from then.

Keep an eye on the VK Logger Forum for the latest information.

Justin VK2CU bolted a mast into the back of the Kingswood ute, mounted several antennae and ventured out. Rob VK3GOM also headed to the hills, but was a little nervous about the windy conditions. After his recent mishap when his dish was blown over and destroyed by an errant gust, he compensated with some locally available counterweights (rocks) on the tripod feet.

Rob VK2GOM's stabilised 10 GHz system.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au

Digital DX Modes

Rex Moncur VK7MO

Joe Taylor K1JT advises that while the new modes in WSJT8 all work, they do not generally demonstrate a useful improvement over the modes in WSJT7. The one exception is ISCAT, designed for ion scatter on six metres which showed a useful improvement over JT6M. Our own VK testing (Alan VK3XPD and Dave VK3HZ to Rex VK7MO) shows that ISCAT is useful for 10 GHz aircraft enhancement and troposcatter, as it copes well with the high Doppler shift at 10 GHz.

Joe has now withdrawn WSJT8 and has set up a test team in Europe, the US and VK to give him practical feedback on the further development of these modes. John VK4JMC, Peter VK3SO and Rex VK7MO are the VKs on the test team. To date, ISCAT has been further improved and will become a permanent feature of the next release of WSJT. In VK, our work has focussed on JTMS which is a new mode designed to replace FSK441 but has been significantly improved since its release in WSJT8, by providing information from shorter pings. WSJT8 also includes echo mode that allows testing of the EME performance of your station and was originally included in WSJT4 but not in later versions.

JTMS uses minimum shift keying as compared to FSK for FSK441 and transmits about 30% faster to make better use of short pings. It also includes an averaging feature, which allows it to pick the best from a message where the ping is long enough to repeat some of the information. Our tests to date indicate that its performance is similar to FSK441 but that it gives far fewer garbage decodes and a much cleaner output. Further testing and development will continue to see if it can in fact produce the potential advantage implicit in its faster speed before a decision is made on including it in the next public release of WSJT. In the interim, it is likely that we will conduct wider testing of a Trial version during some VK/ZL meteor scatter activity sessions. If so information will be promulgated on the VHF reflector.

Another feature of the Trial version is a new Graphical User Interface (GUI). While the Europeans and North Americans have been the main drivers, this has provided the opportunity to extend the size of the boxes in which the transmitted information is typed. This has advantage in VK/ZL where we often call more than one station at a time as all of longer message is visible in the box. Another new feature of the GUI is information in the Astronomical Window on the amount of spreading for EME at the frequency being used. This is useful for selecting the appropriate JT4x mode for microwave EME.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

SilentKey

Gordon Yorke VK3ABI

Gordon was ex-RAAF and maintained his interest in radio and became a "ham".

A severe stroke unfortunately limited his activities but he became one of the foundation members of the "Dad's Army" net on 80 m; at this time mainly ex-servicemen, some similarly incapacitated. I can vouch for amateur radio as a valuable form of therapy, as he continued to enjoy

his hobby for the further 25 years with new members to replace those who fell by the wayside

He was a "cracker" bloke and a friend for 64 years.

His voice is sadly missed.

George Lance VK3DS.

AMSAT

'C' ing into the future

David Giles VK5DG
vk5dg@amsat.org

'C' ing into the future

Two recent sources of inspiration have prompted me to write this month's article on the utilisation of C-band with amateur satellites. The first was the Unitec-1 spacecraft on its way to Venus and the second was an excellent homebrew microwave transverter displayed at this year's GippsTech.

What is C-Band?

C-Band covers the SHF microwave frequencies from 4 GHz to 8 GHz [1]. The only amateur allocation in this range is the 6 cm band from 5.65 GHz to 5.85 GHz. This is a secondary service with radio-location being the primary service. The terrestrial weak signal and EME segment is concentrated around 5.76 GHz. There are two 20 MHz segments allocated to the amateur satellite service. These

are 5.65 to 5.67 GHz for Earth to space uplinks and 5.83 to 5.85 GHz for space to Earth downlinks.

Amateur satellite use

So far there has not been much use of 6 cm on amateur satellites. AO-40 had a receiver on 5.688 GHz which was tested but had very little use. On the ill-fated cubesat launch in 2006, the University of Hawaii's cubesat had an 'active antenna' that used a free running oscillator that was resonant around 5.85 GHz. This would have provided a 2 mW EIRP signal that would have been a real challenge to receive. Unfortunately the launch was a failure so this and the other twelve cubesats became part of a large crater in Kazakhstan [2].

This year the Unitec-1 was launched along with Japan's Planet-C Venus orbiter. Signals were received on

5839.9 GHz very early into the mission but have not been heard since. While Unitec-1 was not an amateur satellite, amateurs were involved in receiving telemetry.

Future proposals

However, there have been some detailed proposals for future satellite missions. AMSAT-NA proposed the C-C Rider transponder for the high Earth orbit Eagle mission that was to use both uplink and downlink segments during the 2003 symposium [3]. C-C Rider was revised for the 2004 symposium with design updates and changes to the 5.8 GHz spectrum. These included using multiple modules consisting of a 0.5 Watt transceiver and patch antenna. These would be combined to provide a large signal that could be electronically steered. In 2006 C-C

Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft.

AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net
Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink connections, the net will also be available via RF on the following repeaters and links.

In New South Wales
VK2RMP Maddens Plains repeater 146.850 MHz
VK2RIS Saddleback repeater 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland
VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia
VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 438.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania
VK7RTV Gawler 6 m. Repeater 53.775 MHz. IRLP node 6124
VK7RTV Gawler 2 m Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory
VK8MA Katherine 146 700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night.

Should you wish to join AMSAT-VK, details are available on the web site or sign up at our group site as above. Membership is free and you will be made very welcome.

Rider had to be abandoned as it was deemed impractical due to difficulties in isolating the receiver from the transmitter. At the 2006 symposium a revised proposal was presented that used 5.8 GHz for the downlink and a choice of 1 26 or 3.4 GHz for the uplink. 3 4 GHz is not available for satellite use in region 1 (Europe and Africa). This may change in the future as more European countries are allowing amateur operation in that band [4].

AMSAT-DL's P3E mission has a 5.6 GHz receiver which was constructed in 2005. During operation it will be connected to either the 10.4 GHz or 47 GHz transmitters.

Probably the next satellite to fly with C-band is the ESEO low Earth orbiter. The amateur payload is proposed to have a U/S FM transponder, a U/V linear transponder and a CW/FSK beacon on 5.840 GHz. The beacon will transmit a 400 mW linear polarised signal using a short horn antenna.

At the 2009 UK Colloquium more details on the mission were presented. A PowerPoint presentation is available on their website [5]. Included are a block diagram of the amateur payload, a picture of the transmitter and antenna, and a block diagram of a groundstation downconverter for 5.84 GHz to 145 MHz.

To get some idea of what I would need to hear this signal, I put the following into the AO-51 link budget spreadsheet found on the AMSAT-NA website [6]. In the downlink column I changed the frequency to 5840, the Tx power to 0.4 and the antenna gain to 0. The minimum dish size should be ten times the wavelength, so in this case a 60 cm dish will do. According to the VK3UM EME calculator [7] this gives me a gain of around 25 dB with a beamwidth of 6.6 degrees (assuming an efficiency of 50%). For a pre-amplifier/downconverter combination, I will assume it is right at the feedpoint of the dish and has a noise figure of 1 dB and a total gain of 30 dB.

Using the receiver performance section of the VK3UM calculator (5.76 GHz, cable 2 – 0, LNA noise figure 0.9 dB, LNA gain=30 dB, 2.4 kHz bandwidth) it comes up with a receive sensitivity of -145 dBm. Putting this in as the receiver noise floor ends up with a signal to noise ratio of 13 dB which is audible. These

figures are only a rough guide done very quickly. The pre-amplifier/downconverter figures are from the Down East Microwave website for their 5760 transverter and pre-amplifier kits [8].

Now onto the other aspects of receiving the signal: tracking and tuning.

A 60 cm dish with a 3 dB beamwidth of only 6.6 degrees will need far more accurate pointing than a typical 2 m/70 cm satellite setup. Going to a bigger dish will increase the antenna gain but will make tracking even more difficult.

The tuning will present a bit of a challenge. The Doppler shift for a 5.84 GHz transmitter at an altitude of 600 km is a mere +/-135 kHz (or a total of 270 kHz for an overhead pass). Little wonder that the C-C Rider concept was aimed at a high Earth orbit satellite.

I should point out that I do not currently have any equipment for 5.7 GHz and the above is a collection of thoughts on the subject.

Final Pass

While C-band has not featured prominently in the past amateur satellites, it has been attempted and has plenty of proposals for future low and high Earth orbit missions. C-band is challenging but 2.4 GHz was also challenging before AO-13 and AO-40 helped popularise it. Is it inevitable that there will be a C-band amateur satellite orbiting in the near future?

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[2] www.spacegrant.hawaii.edu/reports/12_FA02-SP03/tamamoto.pdf

[3] www.gpstime.com/files/amsat/C-C_RIDER.ppt, www.gpstime.com/files/amsat/cc-revisited.pdf

[4] Ettus M. N2MJI, "Proposed Eagle Advanced Communications Package Downlink Design", Proceedings of the AMSAT-NA 2006 space Symposium

[5] http://www.uk.amsat.org/component/option,com_wrapper/Itemid,278/

[6] http://www.amsat.org/amsat-new/echo/Echo_Linkbudget.php

[7] http://www.sm2cew.com/download.htm

[8] www.downeastmicrowave.com

SilentKey

Keith Haverfield VK4APQ

Born in Bendigo and later working in Melbourne, Keith was apprenticed to Radio Corporations (Astor) and then worked for 20 years as a technician with Mason's Radio in Hampton. His own business "Personal TV Services" flourished in Beaumaris for a time but the sea and the sun beckoned.

Keith built a sextant, taught himself navigation and built a 40 ft steel yacht, machining most of the parts himself and sailed away from Melbourne in 1980, settling near Bundaberg on the shoreline at Innes Park.

Obtaining an amateur licence in 1982, he joined the Bundaberg Club and WIA in the same year and remained a faithful friend to both. Keith was aged 83 and after battling illness that annoyed him terribly, he lost the fight in July this year.

Always wanting to learn more, during his life he built TVs, stereo, radios, a welder, a movie projector with sound, battery chargers, sextant and a couple of boats.

He researched army surplus tower sections and oversaw the design and construction of a 30 m tower on Mt Goonaneman. Completed in 1985 it became an enduring legacy providing communications for the club and the entire region for over 25 years.

He was a member of WICEN, served as Club Secretary, and then President in the late 80s and was a regular attendee at the TARC North Queensland Amateur Radio Convention in Townsville. VK4APQ was a constant voice on weekly nets and was always there to help club members with a technical problem.

Keith leaves a loving wife and fellow amateur, Gaynor VK4FGAY and will be greatly missed by all

Submitted by Bundaberg Amateur Radio Club.

Welcome to the VK6 Notes for September. I am writing this the day after a very eventful Hamfest 2010. I will start with other news received, and that means a report from Bob VK6POP of the *Scouts Communications Team*

We conducted an amateur radio Foundation licence course over the weekend of 16-18 July at the Peter Hughes Scout Communication Centre. Five Scouts and three leaders attended, and all passed their assessments. Two participants drove from Geraldton to Perth to attend. Participants camped at the facility over the weekend. On the same weekend, Scouts who already had a licence participated in on and off air activities.

The Team are planning to conduct a Standard licence course later in the year. This course is aimed at Scouts and Leaders who have a Foundation licence; however newcomers will, of course, be welcome to attend.

Excellent news Bob, the Scouting fraternity is increasing its amateur numbers at a rapid rate!

2010 Perth Royal Show: VK100WIA – WARG/VHF Group/WICEN/Scouts

This year these groups are combining to attract the attention of the general public at the Perth Royal Show, held in October. The WIA Centenary callsign will be in use for the duration of the show with demonstrations, live on air activities and EchoLink/IRLP will be used to assist operations. A link on 5 GHz to Wireless Hill will allow better coverage than the electrically noisy showground could hope to provide. Drop in and say hello if you are attending or, better still, offer your services to man the stall. More information can be obtained by contacting Heath VK6TWO at actionman5@gmail.com

Hills ARG

The Hills ARG had their AGM on Saturday 31 July and I look forward to receiving an update on their new committee for the next edition of *AR*.

Hamfest 2010

The Northern Corridor Radio Group (NCRG) Hamfest has become the main event in WA's amateur activity calendar over the past 23 years. From its early days at Canne College to its current venue Cyril Jackson Recreation Centre in Ashfield, it has become the place to showcase amateur radio in WA.

See photos on inside back cover.

I believe its main function is to get the radio population of Western Australia together to socialise, recycle used gear, and to view new equipment from the manufacturers. Attendance this year was slightly down, approximately 350 compared to 380 last year, though you would not have noticed it in the packed hall. We lost three exhibitors just before the event. Terry from Terlin Outbacker antennas was in hospital over the weekend but still donated an Outbacker Perth antenna and heavy duty spring base; get well soon Terry.

Neil Penfold VK6NE, the club's patron, was to put on a QSL display, but also was hospitalised and Vertex Standard had to pull out four days before, but we thank them for their donation of a FT-207R handheld for the raffle.

This year the club itself dug deep and provided two transceivers as prizes, an FT-8900 quad bander and an FT-2800. Other prizes were a TET Emtron 40/80 dipole supplied, of course, by TET Emtron who put on an excellent display of their antenna products and seemed to be doing a roaring trade. Alek VK6AP also donated two solder stations, one for the raffle and one for the Homebrew competition. The raffle first prize was won in dramatic fashion by our raffle seller extraordinaire John VK6NU drawing out his own number! He took the FT-8900. Second out of the barrel was Ken VK6CO who won the Terlin Mobile antenna. Next came John VK6JGF who won the FT-270R handheld, and he then drew the next number and pulled out VK6NU again - the luck of the Irish! John declined and it was redrawn, to be won by Steve GM0WRY who received the FT-2800. As luck would have it the next ticket was won by VK6NU again, but VK6JGF again! He pocketed the solder station and drew the final prize. That was

won by Gerhard VK6GMD who accepted the TET Emtron 40/80 dipole, having just bought a G5RV from TET a few minutes before!

I mentioned the Homebrew Contest earlier. The standard was amazingly high with some truly professional equipment made in home workshops. The judges were very hard pushed to come up with two winners but in the end Bob VK6CG won the power grip driver donated by Metabo and Rob VK6HRW won the soldering station from VK6AP.

John from Tower Communications had a lovely display of a vintage FT-101 series complete with all the options for sale, as well as Icom and Yaesu equipment. Once again Allcom had tables piled high with used communications radios and associated equipment and Fritz VK6UZ had a record eight tables to dispose of his hard to source accessories for the higher frequencies.

Our guest display, *Morsecodeans Fraternity of WA* had a place of honour. It was a pleasure to see and hear these characters of times past sending beautiful Morse on their sounders. The four members present sent telegrams all day from one to the other on their sounders and were receiving them on the old typewriters.

Many present availed themselves of a telegram to treasure. When they last attended several years ago, a friend of mine, David G3UFO, was here on holiday and sent a telegram to his good friend in the UK Ken G3WIC. Ken has this telegram in pride of place above his operating position in his shack. The NCRG is hoping to stage a more permanent display in association with the *Morsecodeans* in the near future, and we thank them for providing an entertaining display at Hamfest. You can see more of them every year at the Perth Royal Show.

I must not forget the others who attended, the guys who cleared out their shacks and sheds and disposed of many weird and wonderful things.

A limited issue operating award is available to celebrate the 100th year of the Wireless Institute of Australia (WIA), the world's oldest national radio society.

To qualify for an award contact is required with the Centenary of Organised Amateur Radio in Australia special event station VK100WIA. A distinctive QSL will be available.

The WIA, through its affiliated radio clubs, will operate this unique callsign from 1 May to 31 October 2010.

The callsign was used in Canberra, at the WIA Annual General Meeting and associated events on 28-30 May.

It will be on all amateur bands available to VK radio amateurs including the popular HF bands.

The award rules are: Those radio amateurs outside Australia need to

WIA Centenary Award

achieve 50 points while VK hams require 100 points.

A contact with VK100WIA operated by the WIA or a Club is worth 10 points (only one contact with VK100WIA operated by the WIA and only one contact with each Club) and there must be a minimum of two contacts with VK100WIA.

Contacting any WIA member between 1st May 2010 and 31 October 2010 is worth five points (Example: working VK100WIA at 10 different Clubs would be eligible for the award. Working 16 WIA members gives 80 points but then two contacts must be made with VK100WIA).

Any mode may be used; cross-mode and cross-band contacts are permitted. Satellites and repeater

100 YEARS

contacts are permitted. Send AU$5 or 3 IRCs and a list of contacts (QSLs not required) to the Awards Manager WIA Centenary Award, PO Box 2042, BAYSWATER VIC 3153 AUSTRALIA.

Listen around the bands or visit the WIA website www.wia.org.au for frequent updates of the operator club's roster.

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Hamads classifieds free to members

FOR SALE - VIC

For sale as a package only - 1 only FT-897D transceiver #BL00536I. 1 only LDG AT897 tuner total. 1 only FP30 power supply fitted, # 8H067. 1 only FT meter (small) 1 only MH31 microphone, and 1 only MH31 OBP microphone. All are in as new condition, $1,100 lot. Daiwa CN801 meter, new in box, $50.00. Contact Tony VK3VTH, on 0423 635 152 or email vk3vth@wia.org.au

WANTED - VIC

Wanted book title – Electronic Applications of the Smith Chart by Phi. p H Smith Contact Roderick Wall 1 VK3YC, phone 0413 734 886 or email vk3yc@wia.org.au

FOR SALE - NSW

DB 37-FT2000 cable for Microham Microkeyer II new, $70.00. Elecraft KFL3A-2 7 kHz filter, new, $100.00. Elecraft KXV3RXA mod board, new, $25.00. Trimble Lassen SK II GPS board, new, $40.00. Trimble GPS antenna 5V 26 dB gain new, $30.00. Quady soldering wire, HyGain RF-550A RF power meter and antenna switch, 4 antennae select on, 400 W and 4000 W power range meter The external case is rusty, but the unit s fully operational, $100.00. Tom VK2OE, 3 Bu'er Street, Bonalbo NSW 2469 email wojtech tomczyk@det nsw.edu.au

HyGain 14AVQ HF vertical antenna, negotiable. Ringo Ranger 2 metre antenna, $19 MDS Democonverter, $5. N and SO239 switches, filters, SWR bridges, magnetic bases and mobile whips, negotiable
Satel.te Package - 2 4 metre mesh dish on polar mount Chaparral C Band Polarator feed, Norsat Gold 15K C Band LNB, 24°actuator,

Winersat WR920 Rx (dish controller), $220
Digital Satellite Rx's - UEC DSD6500, $100
Nokia 9500S with DVB2000 S/W, $100
Nokia 9500S with DVB2000 S/W, $100 or 3 Zenith DTH300-S, $5.
2 x Pace DGT400's, $5 ea.
Other Satellite parts - Chaparral CoRotor II C/Ku feed, Norsat Gold 15K C Band LNB, Gardiner 7dB Ku LNB $100. Dynalink C Band LNBF "One Cable Solution", $15 California Amp C Band LNBF 25K, $25. Chaparral Model C Ku LNB, 9.75/10 75 GHz LO's, $20 ACES AT Twn Ku LNBF's, $20 ea. California Amp Ku LNBF, $10. Sharp Ku LNBF's, $15 ea.
DX Antenna DSA527N Ku LNBF, $5.
2 x DX Antenna DSA527D Ku LNBF's, $5 ea.
Zinwell SAB-09C Coax relays, $15 ea.
4 x Irdeto CAM's, not CI, various ages and S/W, $20 ea.
Many other miscellaneous satellite parts
Contact Roger VK2WW, VK2WW@Hotmail Com or phone 02 9546 1927

Antique multimeter, 0-500 VDC, 0-100 mA DC Ferranti, in wooden case, large air wound coil on frame 28 cm (11 inches) long by 15.2 cm (6 inches) diameter; a series of radio text books, send email to get inventory; Reel to reel tape decks - send email to get more details; valve tester - Palec model VCT-T, common aerial filter Marconi- 150 - 174 MHz.
Kantronics packet modem 'Communicator 3', Antique multimeter – USA- made AC 600 VDC 1500 V, 150 mA DC in compact metal case, Linearity pattern generator - Heathkit, model LP1; Antique signal generator- Paton Electric – 150 kHz to 15 MHz in metal case, collectable antique (Australian made) oscilloscope - BWD 'Portascope' 7.5 cm (3 inch) screen; VTVM-AWA Voltohmyst type A56010, Ammeter - car type 60-0-60 Amps UK- CAV brand, Multimeter,

Japanese, 1000 VDC, 250 mA DC - may be a war trophy!, AVO multimeter, up to 15 A DC and 7.5 A AC - 750 V AC/DC, made in 1945, in excellent condition, morse key, H- Mound HK 706; morse key, Hi Mound HK 705
I will accept reasonable and genuine offers for all of the above items.
Contact Graeme Scott VK2KE, email gsco8077@bigpond.net au or mobile 0438 218 897.

WANTED - NSW

Carbon elements for the standard size Scope soldering iron
Neville Chivers VK2YO, QTHR or phone 02 6674 2095.

WANTED - QLD

TS-120S or TS-120V, or similar in good working order. Please advise price and details to ejcantle@bigpond.com   Mervyn VK4DV

FOR SALE - SA

Icom IC-718, Serial No 0812854, plus power leads, microphone and handbook $500.00.
Power supply GME 13.8 V, 35 A peak, Serial No 405/229, $450.00
ATU, MFJ Versa Tuner II – 941 $230.00
All in very good condition Contact Bill VK5MZ, on 08 8536 8510, or email bilandot@hotmail org.au

A short Ham Radio adventure written for children and teenagers but suitable for people of all ages.
Details at www.vk5sw.com or $20 de ivered within Australia
Rob VK5SW QTHR

DIRECTORY

Advisory Committees
Chairman of the regional committee is in bold.

Continued from page 53

Our regulars, the VHF Group and the WA Repeater Group, signed up members. The Scouts Communications team raised funds selling junk, sorry pre-loved equipment.

The WIA was represented and did a good trade in shirts, caps and callbooks, as well as publicising Ham College and their efforts to encourage new members. It was great to see amateurs from Kalgoorlie, Esperance, Albany, Tom Price, Geraldton and all parts of the state making an effort to

attend, then making the long trip back. Very pleasing to hear from Geraldton, about their increase in local activity and proposed repeater/ IRLP/EchoLink projects as I often pass that way.

Club members work very hard to stage this event; it takes much planning to fill this large venue and to cater (thanks ladies, and Ian VK6ZIC) and this year Wayne VK6EH, Richard VK6BEC and their team did an excellent job.

So, finally as President of the NCRG, I would like to thank all who attended

this year, our paying guests, our traders, the clubs and the club members for another excellent day. I even had a table and sold some surplus gear! Next year's event is already being planned and the venue booked for Saturday 7 August, hopefully we will see you there.

Back to normal next month, with October being the prime contest month of the year with major contests on every weekend, with the NCRG out at Muresk Agricultural College again for one weekend and two other weekends contesting from the club. Then there is JOTA, which this year will see the NCRG hosting two Scout groups for the weekend, and the inaugural WIA National Field Day. I am not sure I can convince members to be active every weekend in a contest but I am going to try.

Please have a look at the WIA National Field Day on the WIA website and have a go even if you have never contested before, honestly, you can be easily hooked! And, as usual, a plea goes out for input to this column.

73, Keith VK6RK vk6rk@wia.org.au **ar**
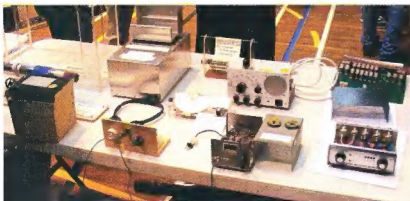
The Hamfest Homebrew Contestants

Hamfest NCRG

Clockwise from top left.

The telegraphy 'boys'; the Morsecodeans.

Neil VK6DBO at the WIA table.

Hamfest raffle first prize winner VK6NU(l) with VK6RK.

The packed Hamfest hall.

The Homebrew prize-winners–Bob VK6CG (r) won the power grip driver donated by Metabo and Rob VK6HRW won the soldering station from VK6AP.